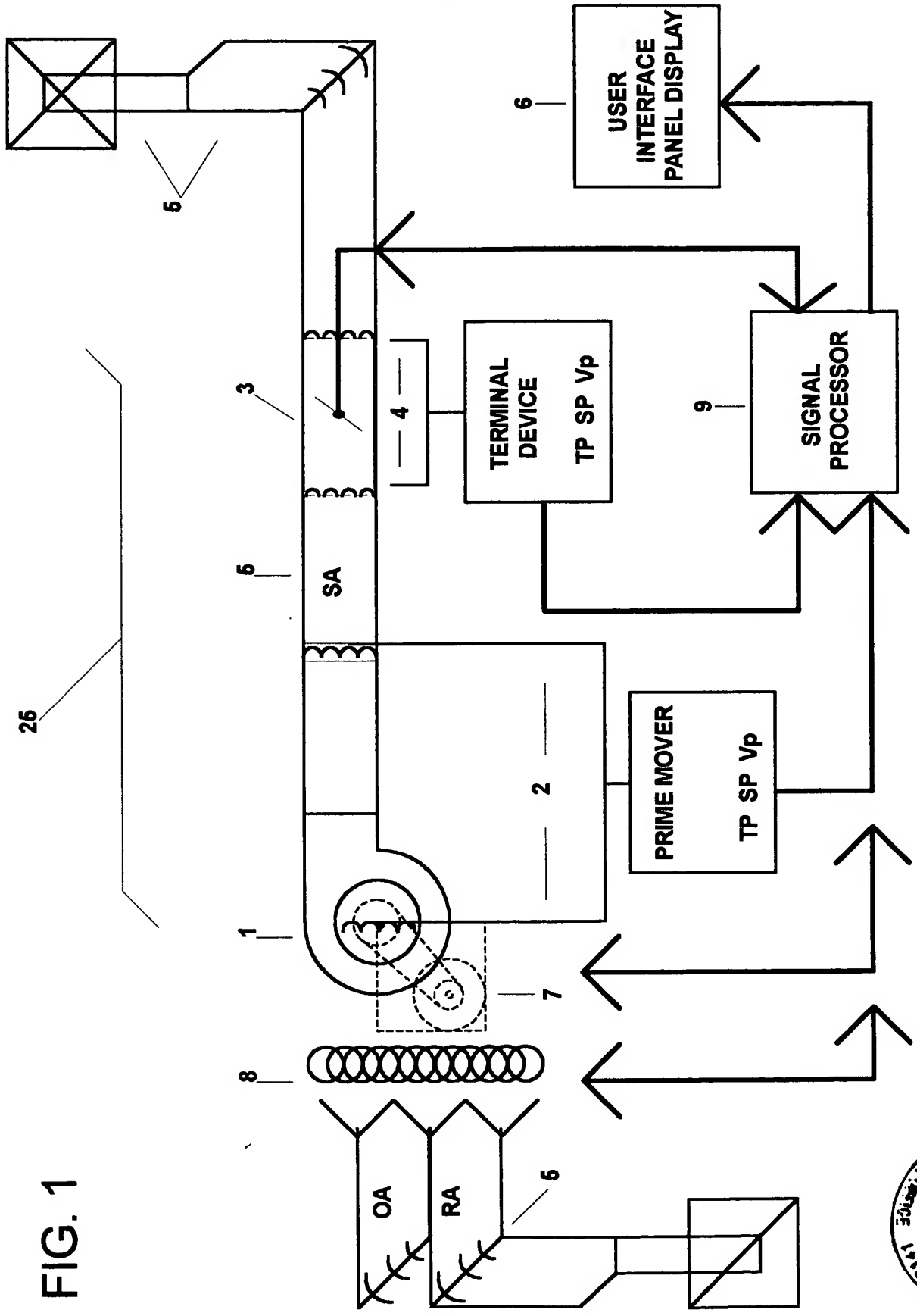
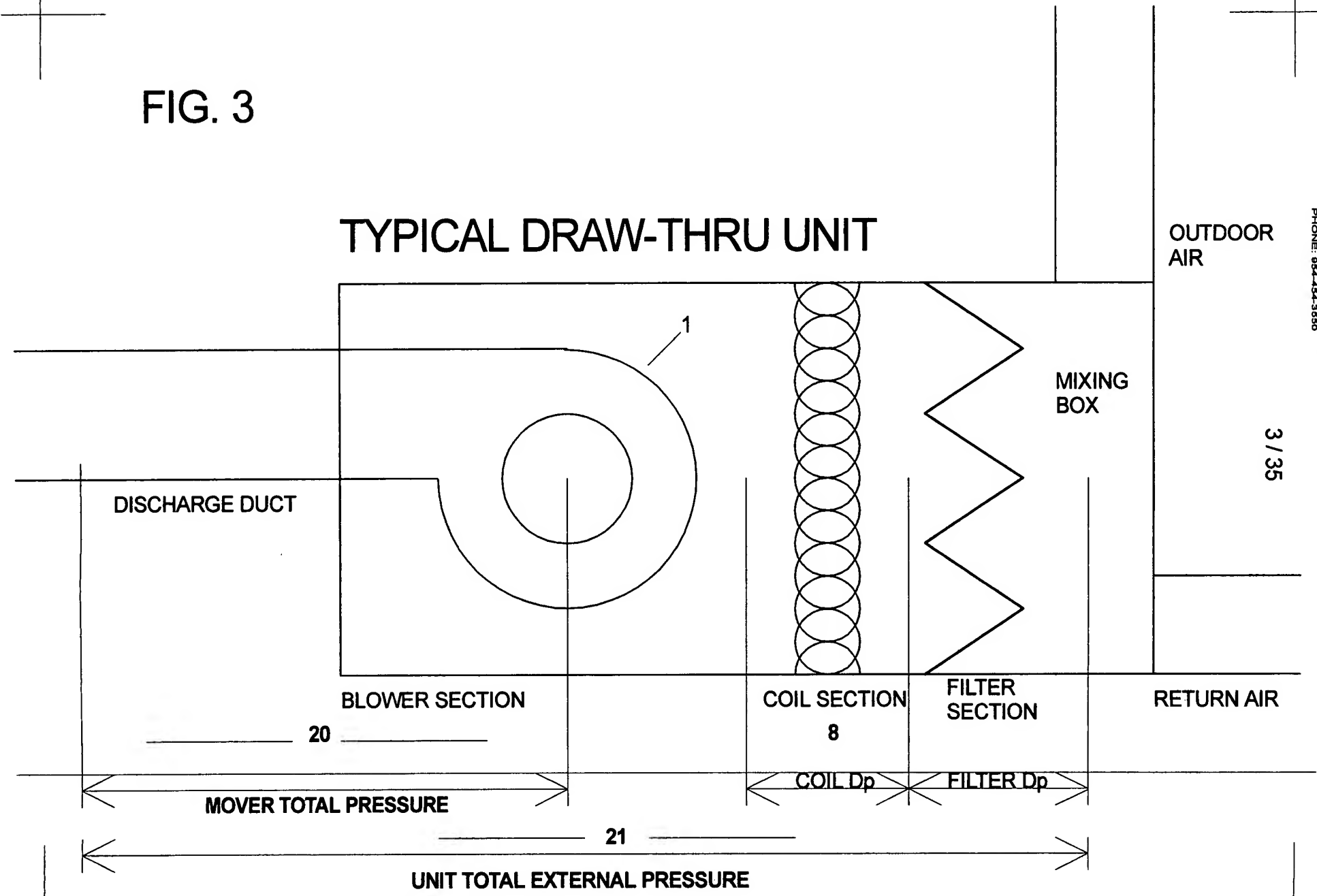


FIG. 1

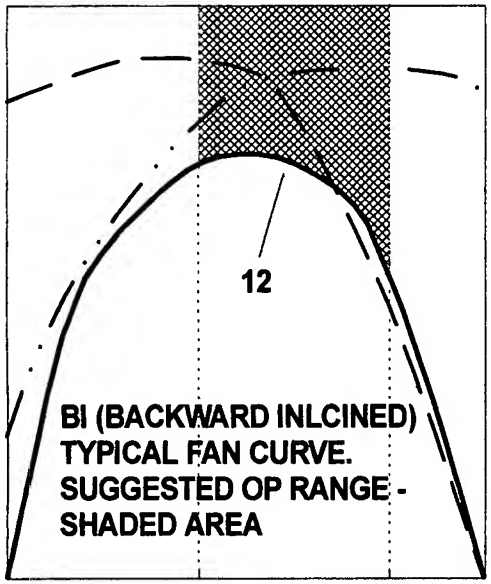
FIG. 3



INV. TITLE: FULLY ARTICULATED AND COMPREHENSIVE AIR AND FLUID DISTRIBUTION, MONITORING, AND CONTROL METHOD AND APPARATUS FOR PRIMARY MOVERS, HEAT EXCHANGERS, AND TERMINAL FLOW DEVICES;
INV. NAME: DANIEL STANIMIROVIC
PHONE: 954-434-3550

TRADITIONAL FAN PERFORMANCE CURVES

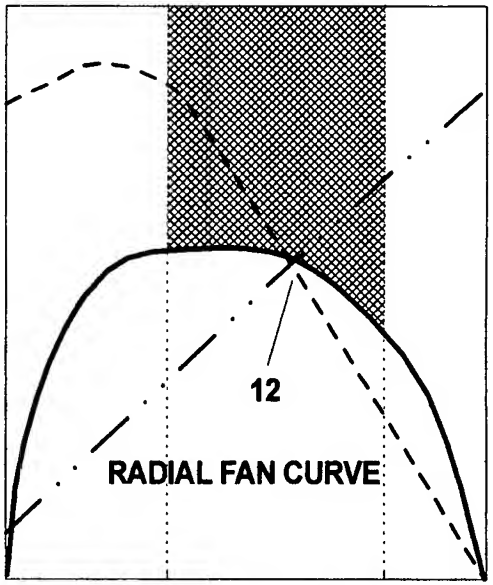
FIG. 5



BI (BACKWARD INLCINED) TYPICAL FAN CURVE. SUGGESTED OP RANGE - SHADED AREA

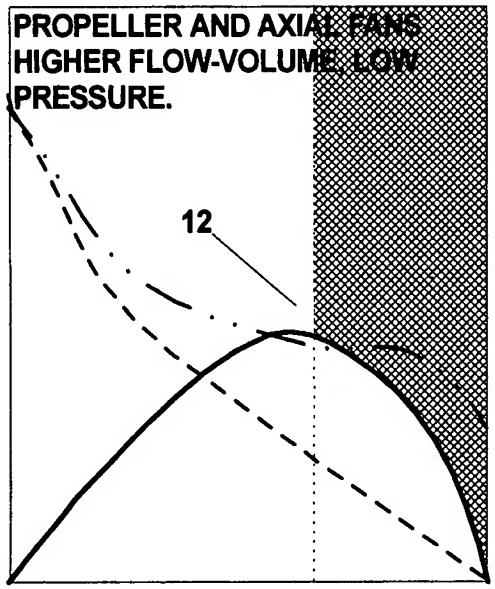
SP
STATIC EFF.
BHP

SP CURVE OCCURS AT SPECIFIED FRPM AND IS THE BASIS FOR DETERMINING OP WHEN PLOTTED AGAINST A GIVEN SYSTEM.



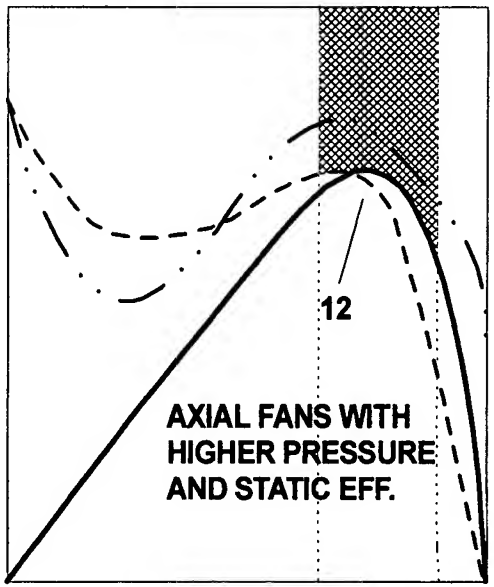
RADIAL FAN CURVE

PROPELLER AND AXIAL FANS HIGHER FLOW-VOLUME, LOW PRESSURE.



NEW METHOD SHALL FURTHER BREAK DOWN THIS CURVE INTO THE THREE KEY COMPONENTS FOR ANALYSIS: SP, Vp, TP

THIS WILL ALSO PROVIDE THE BEST MEANS OF PAIRING A PRIME MOVER AND ITS SYSTEM FOR EQUIPMENT SELECTION.



AXIAL FANS WITH HIGHER PRESSURE AND STATIC EFF.

INV. TITLE: FULLY ARTICULATED AND COMPREHENSIVE AIR AND FLUID DISTRIBUTION, METERING, AND CONTROL METHOD AND APPARATUS FOR PRIMARY MOVERS, HEAT EXCHANGERS, AND TERMINAL FLOW DEVICES.
INV. NAME: DANIEL STANIMIROVIC
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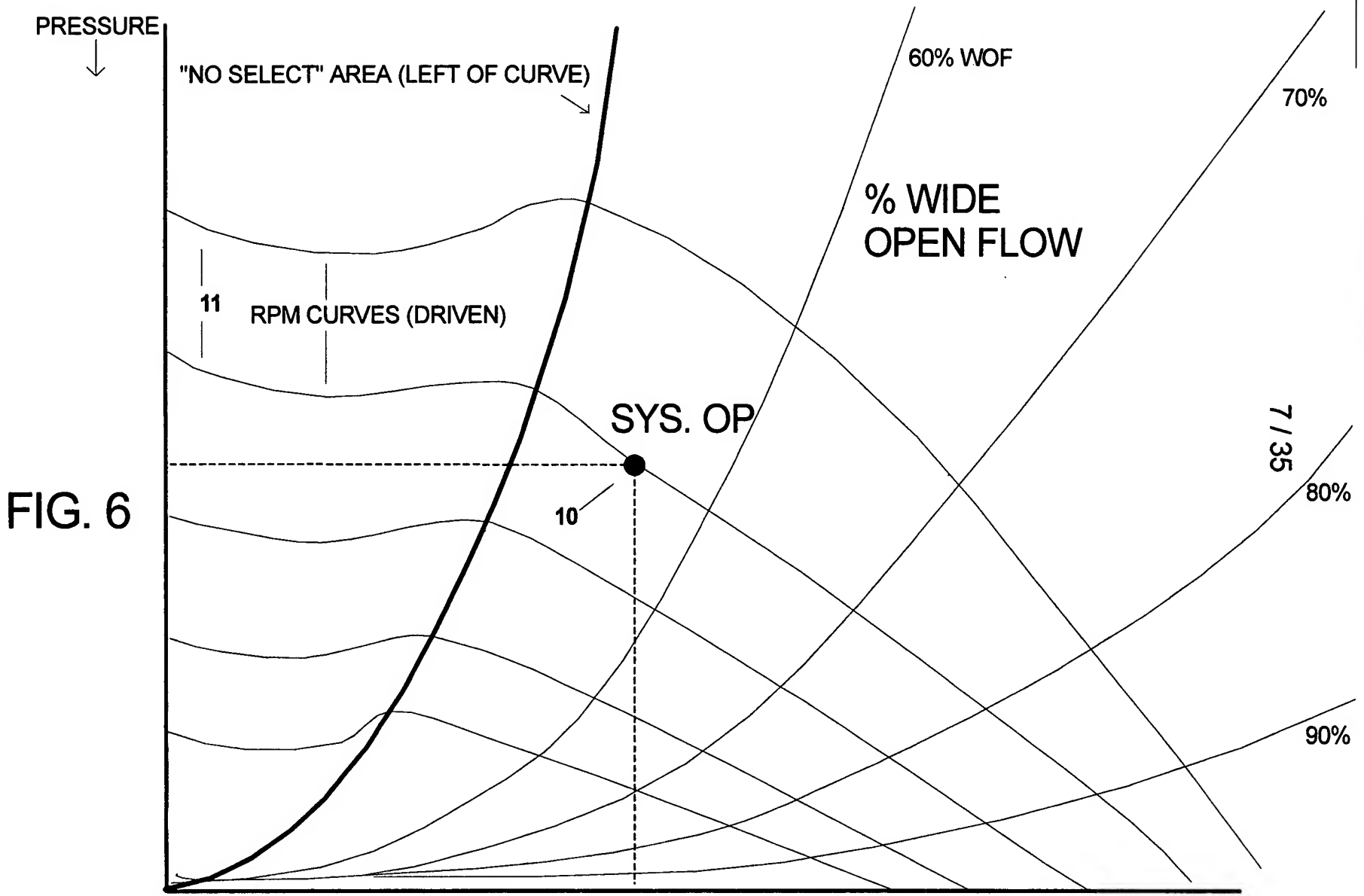

FIG. 6

TYPICAL WIDE OPEN CURVE FOR AN FC FAN

INV. TITLE: FULLY ARTICULATED AND COMPREHENSIVE AIR AND FLUID DISTRIBUTION, METERING, AND CONTROL METHOD AND APPARATUS FOR PRIMARY MOVERS, HEAT EXCHANGERS, AND TERMINAL FLOW DEVICES.
INV. NAME: DANIEL STANIMIROVIC
PHONE: 954-454-3550

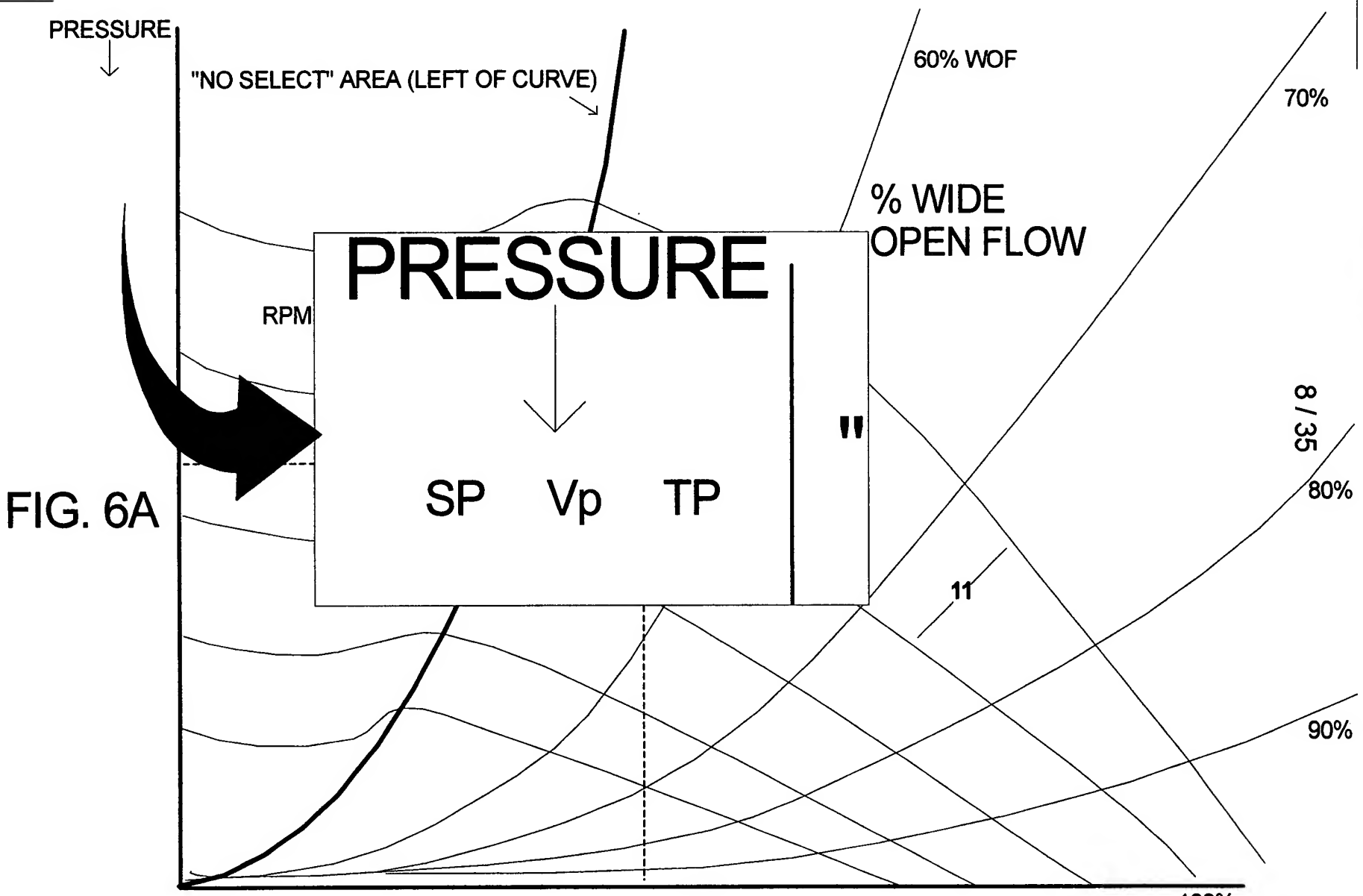

FIG. 6A

3-PT WIDE OPEN CURVE FOR AN FC FAN

INV. TITLE: FULLY ARTICULATED AND COMPREHENSIVE AIR AND FLUID DISTRIBUTION, METERING, AND CONTROL METHOD AND APPARATUS FOR PRIMARY MOVERS, HEAT EXCHANGERS, AND TERMINAL FLOW DEVICES.
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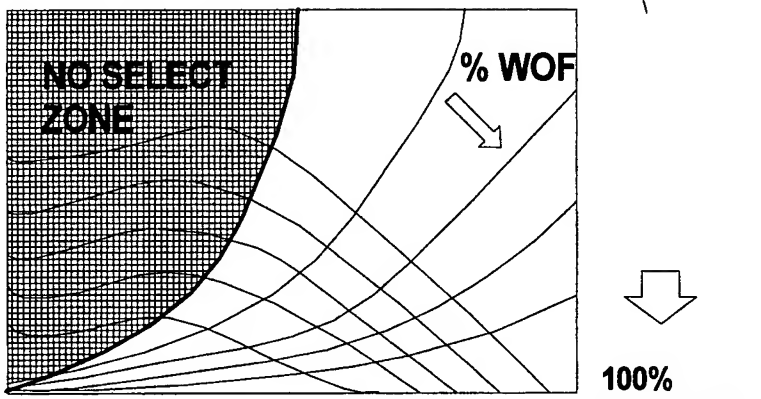
PHONE: 954-454-3550

WIDE OPEN AND SYSTEM CURVES JUXTAPOSED

FIG. 7

KNOWN PRIME MOVER WOC



UNKNOWN TOTAL SYSTEM ATTACHED

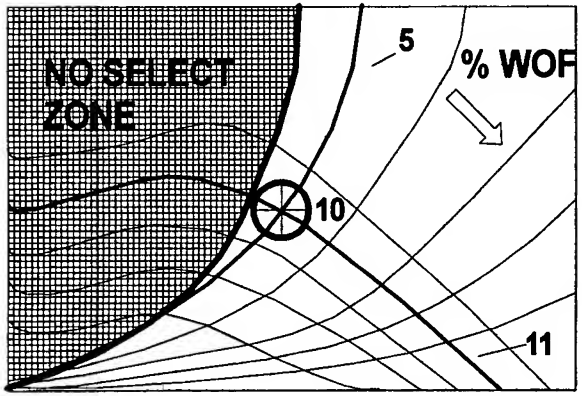
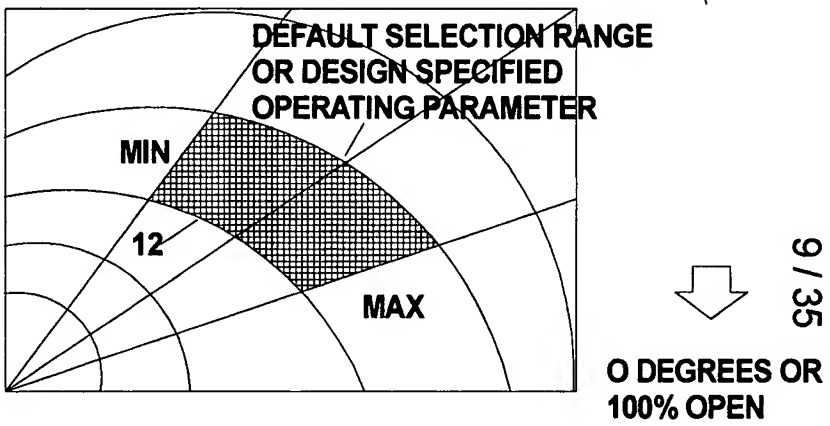
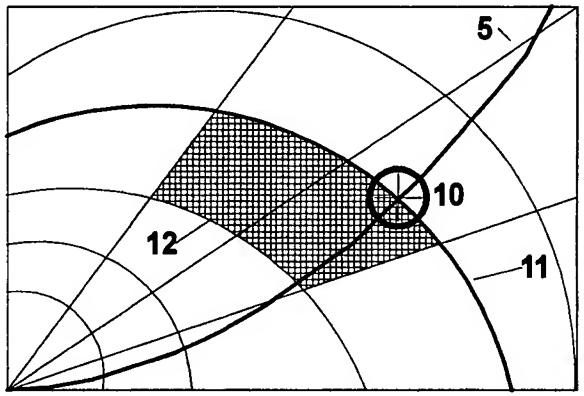


FIG. 7A

TERMINAL OR IN-LINE DEVICE WOC



UNKNOWN SUB-SYSTEM ATTACHED



INV. TITLE: FULLY ARTICULATED AND COMPREHENSIVE AIR AND FLUID DISTRIBUTION, METERING, AND CONTROL METHOD AND APPARATUS FOR PRIMARY MOVERS, HEAT EXCHANGERS, AND TERMINAL FLOW DEVICES.
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PHONE: 954-454-3550

PRIMARY OR TERMINAL HEAT EXCHANGE

INV. TITLE: FULLY ARTICULATED AND COMPREHENSIVE AIR AND FLUID DISTRIBUTION, METERING, AND CONTROL METHOD AND APPARATUS FOR PRIMARY MOVERS, HEAT EXCHANGERS, AND TERMINAL FLOW DEVICES.
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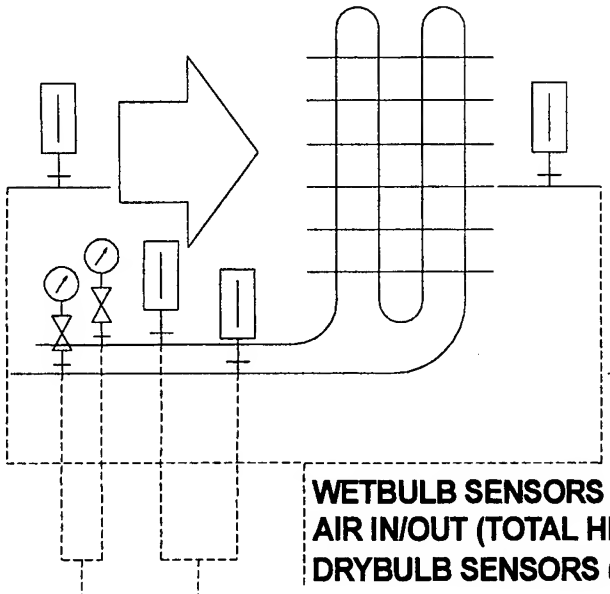
PHONE: 954-454-3550

FIG. 8
AIR TO WATER

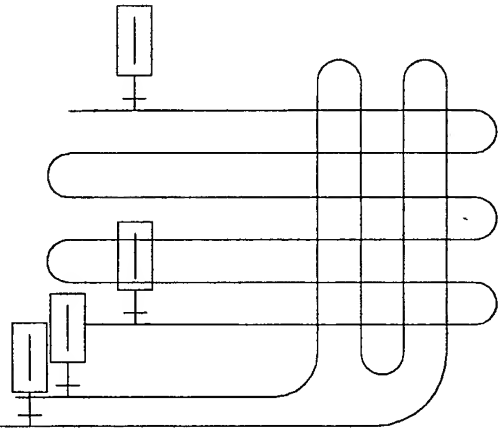


WETBULB SENSORS
AIR IN/OUT (TOTAL HEAT)
DRYBULB SENSORS (SENSIBLE ONLY)

CHW/HW TEMP. (IN/OUT)

CHW/HW COIL
PRESS. DROP

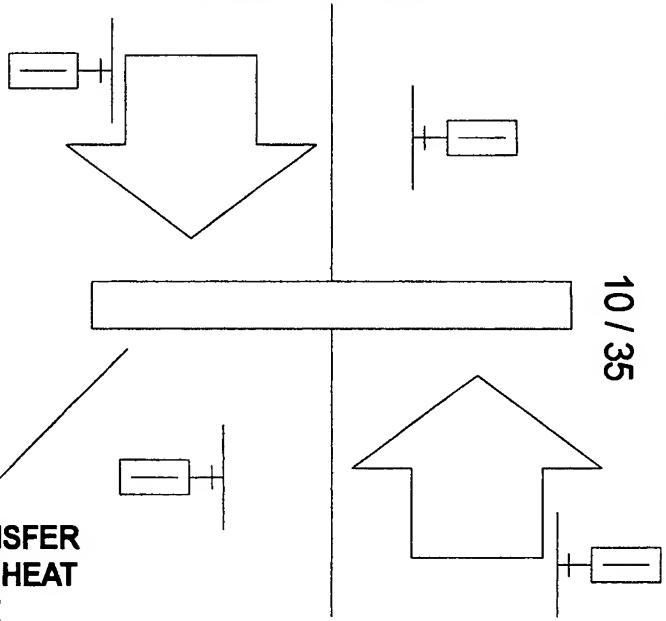
FIG. 8A
WATER TO WATER



*VARIATIONS WOULD INCLUDE THE FOLLOWING IN ANY ARRANGEMENT, FORM, NUMBER, OR COMBINATION:

AIR-GAS-FLUIDS TO SAME
FLUIDS TO FLUIDS
GASES TO GASES
FLUIDS TO GASES, VICE VERSA
MIXTURES TO MIXTURES
(ALL OF THE ABOVE)

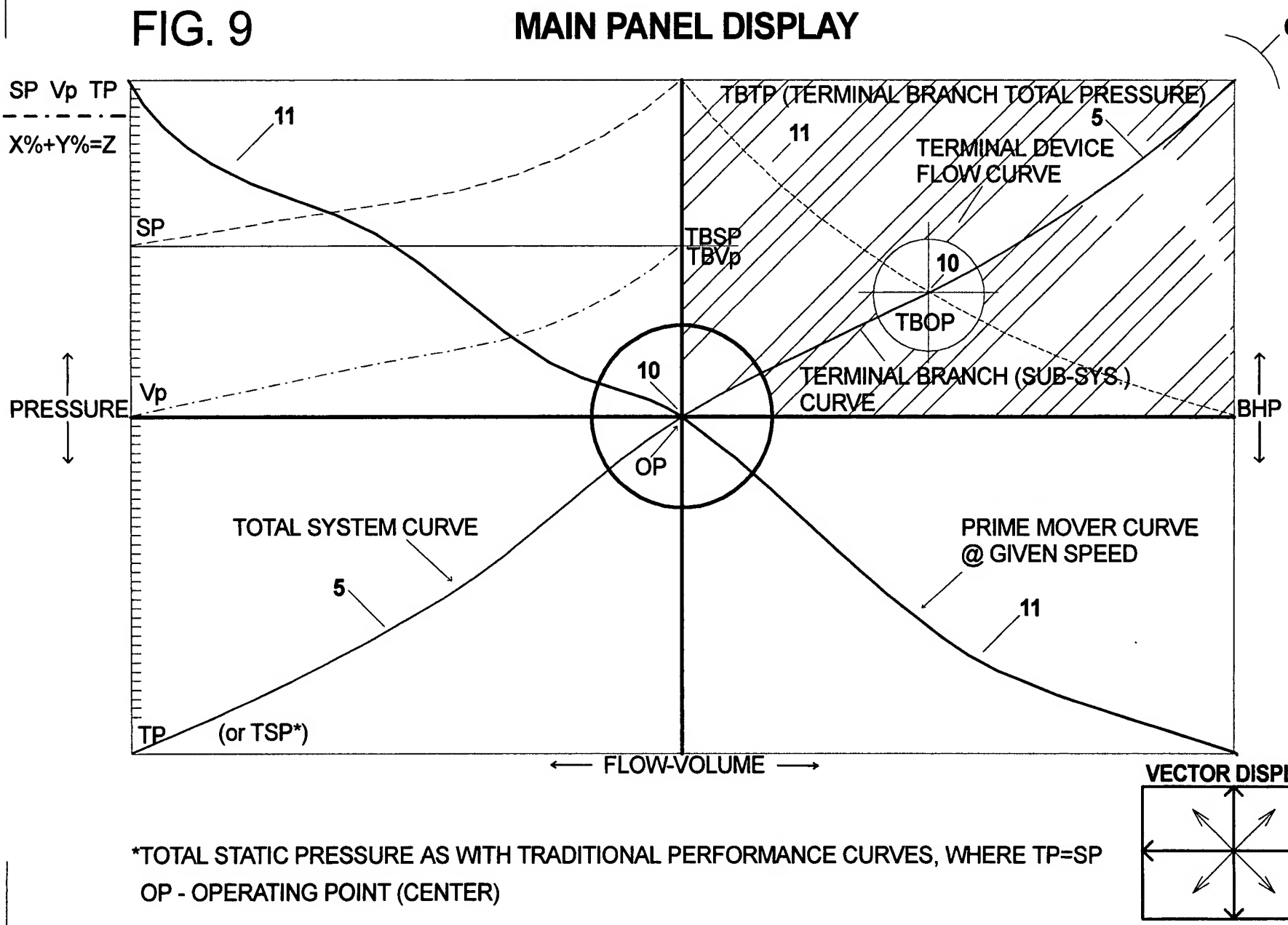
FIG. 8B
AIR TO AIR



HEAT TRANSFER WHEEL OR HEAT EXCHANGE MEDIUM

ENTERING AND LEAVING AIR TEMPERATURES IN COUNTER FLOW EXCHANGER

FIG. 9

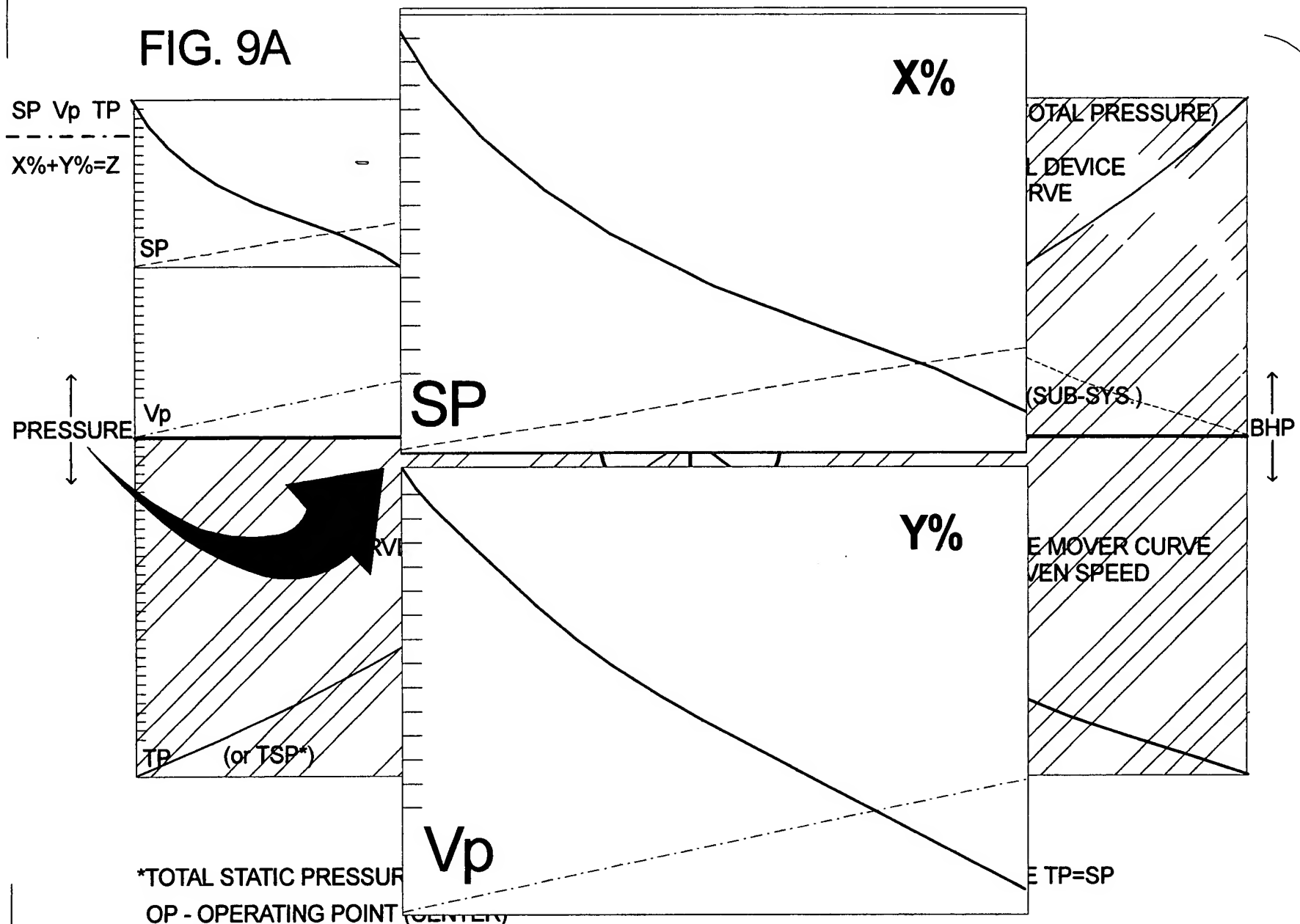


*TOTAL STATIC PRESSURE AS WITH TRADITIONAL PERFORMANCE CURVES, WHERE TP=SP

OP - OPERATING POINT (CENTER)

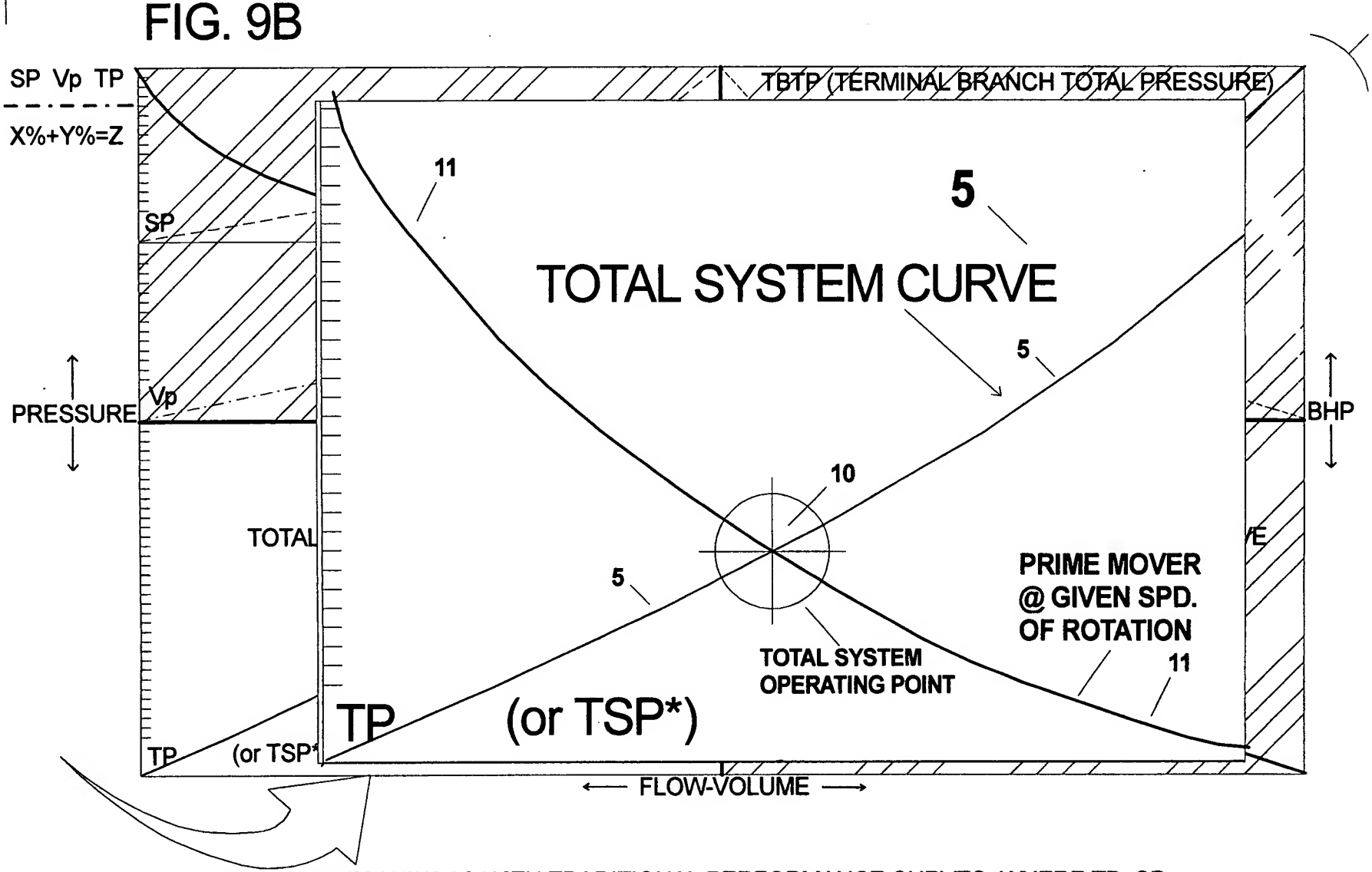
INV. TITLE: FULLY ARTICULATED AND COMPREHENSIVE AIR AND FLUID DISTRIBUTION METHOD, CONTROL METHOD AND APPARATUS FOR PRIMARY MOVERS, HEAT EXCHANGERS, AND TERMINAL FLOW DEVICES.
INV. NAME: DANIEL STANIMIROVIC
PHONE: 954-454-3550

FIG. 9A



INV. TITLE: FULLY ARTICULATED AND COMPREHENSIVE AIR AND FLUID DISTRIBUTION, METERING, AND CONTROL METHOD AND APPARATUS FOR PRIMARY MOVERS, HEAT EXCHANGERS, AND TERMINAL FLOW DEVICES.
INV. NAME: DANIEL STANIMIROVIC
PHONE: 954-454-3550

FIG. 9B

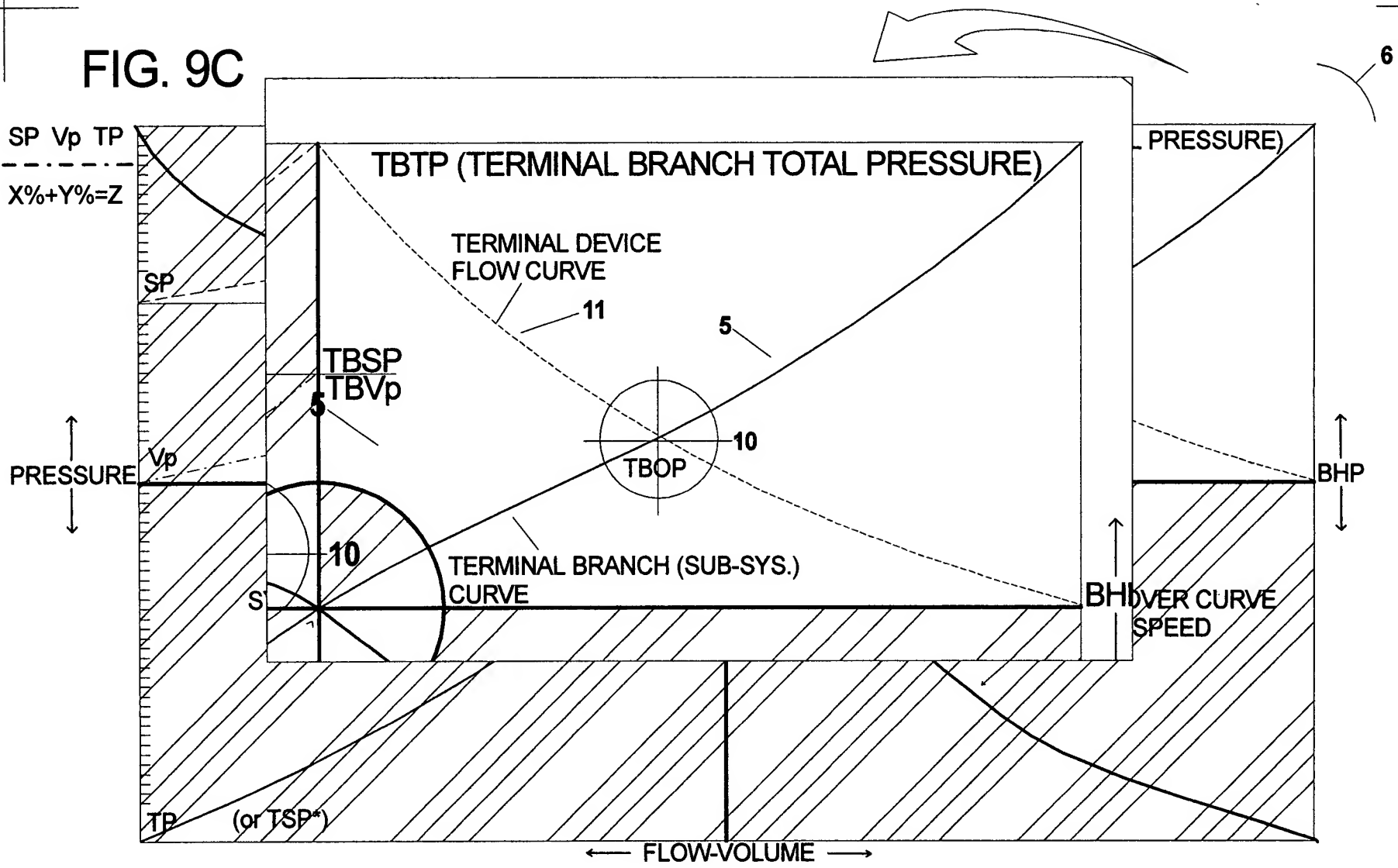


*TOTAL STATIC PRESSURE AS WITH TRADITIONAL PERFORMANCE CURVES, WHERE TP=SP

OP - OPERATING POINT (CENTER)

INV. TITLE: FULLY ARTICULATED AND COMPREHENSIVE AIR AND FLUID DISTRIBUTION, METERING, AND CONTROL METHOD AND APPARATUS FOR PRIMARY MOVERS, HEAT EXCHANGERS, AND TERMINAL FLOW DEVICES.
INV. NAME: DANIEL STANIMIROVIC
PHONE: 954-454-3550

FIG. 9C

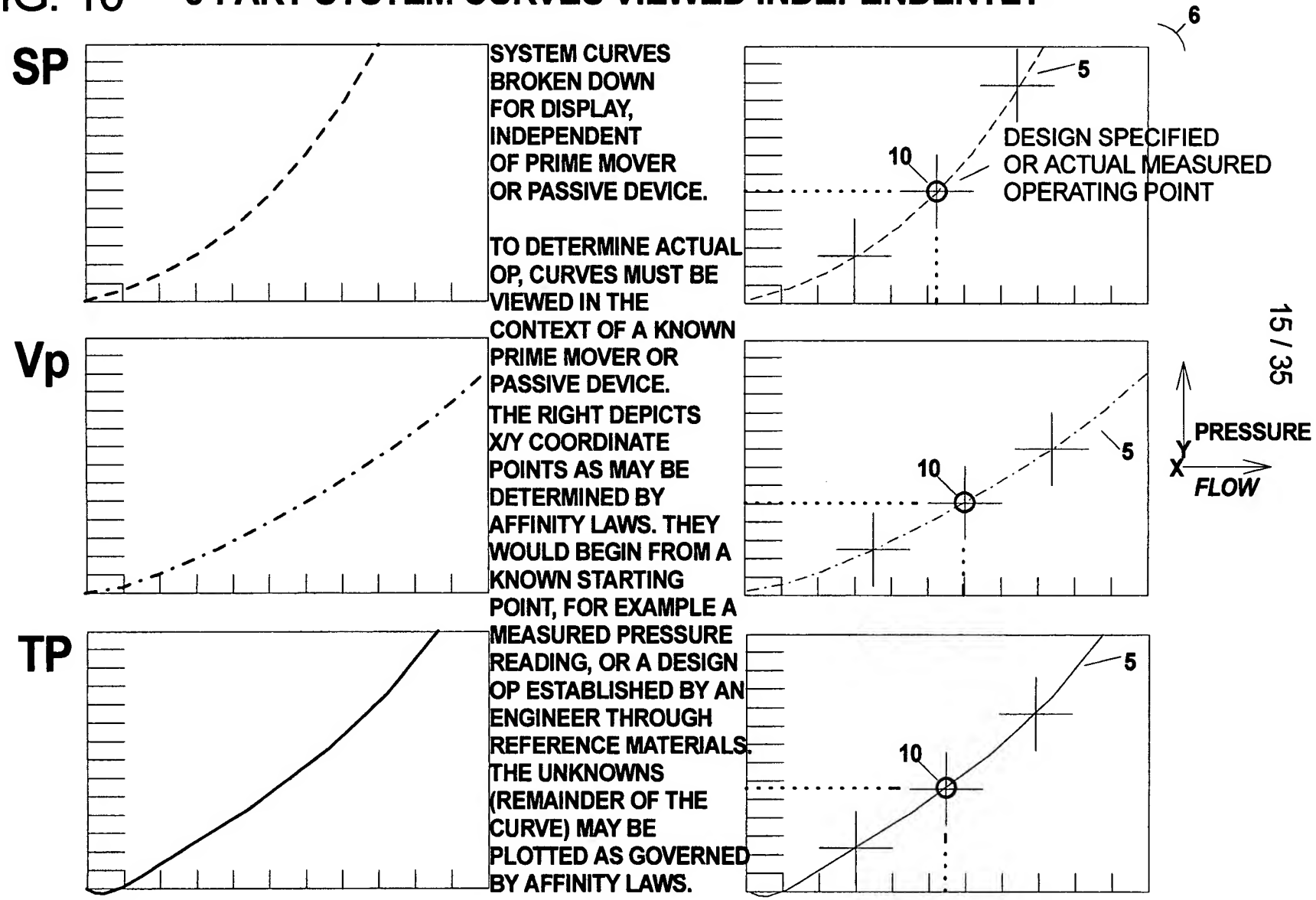


*TOTAL STATIC PRESSURE AS WITH TRADITIONAL PERFORMANCE CURVES, WHERE TP=SP

OP - OPERATING POINT (CENTER)

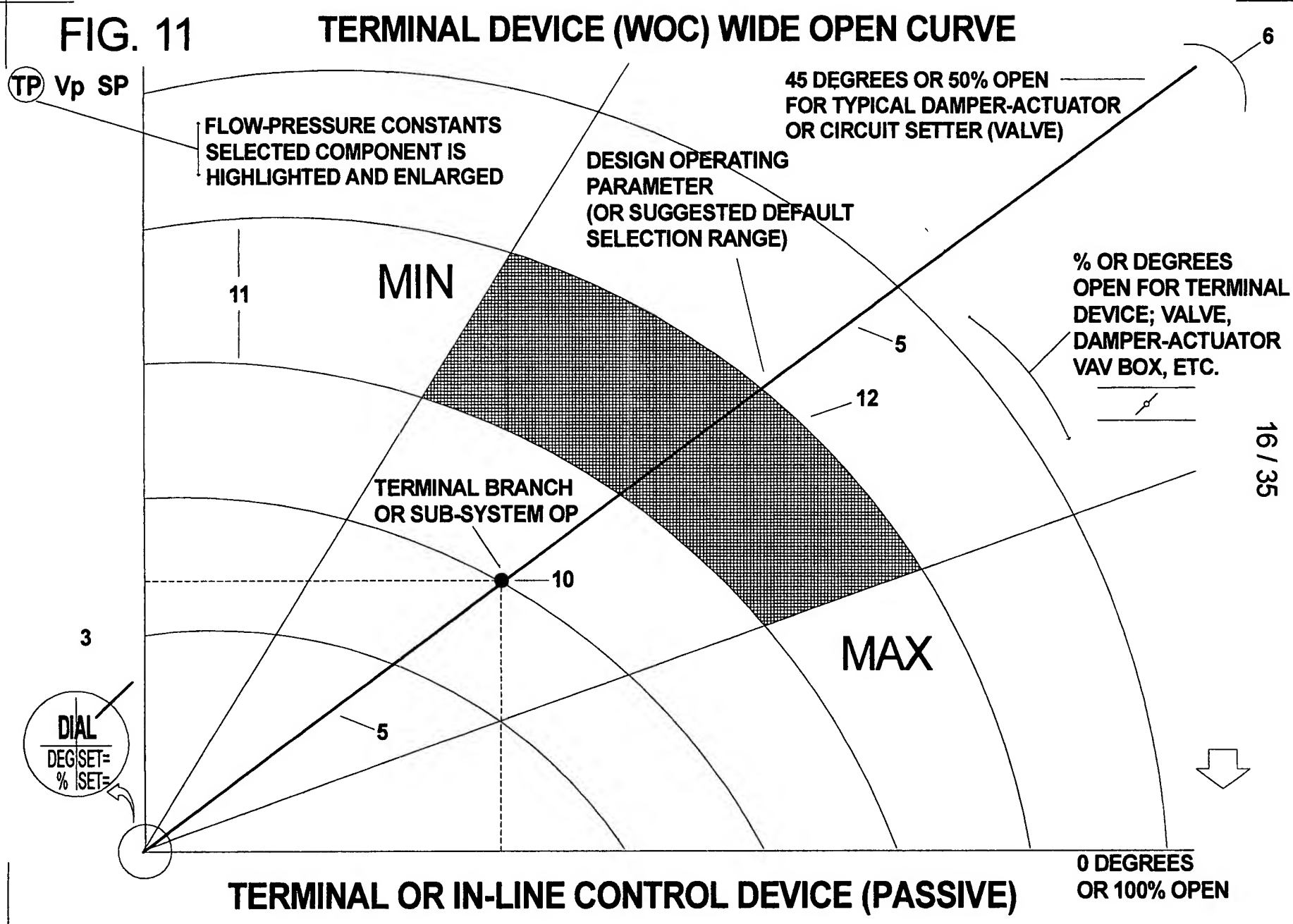
INV. TITLE: FULLY ARTICULATED AND COMPREHENSIVE AIR AND FLUID DISTRIBUTION, METERING, AND CONTROL METHOD AND APPARATUS FOR PRIMARY MOVERS, HEAT EXCHANGERS, AND TERMINAL FLOW DEVICES.
INV. NAME: DANIEL STANIMIROVIC
PHONE: 954-454-3550

FIG. 10 3-PART SYSTEM CURVES VIEWED INDEPENDENTLY



INV. TITLE: FULLY ARTICULATED AND COMPREHENSIVE AIR AND FLUID DISTRIBUTION, METERING, AND CONTROL METHOD AND APPARATUS FOR PRIMARY MOVERS, HEAT EXCHANGERS, AND TERMINAL FLOW DEVICES.
INV. NAME: DANIEL STANIMIROVIC
PHONE: 954-454-3550

FIG. 11

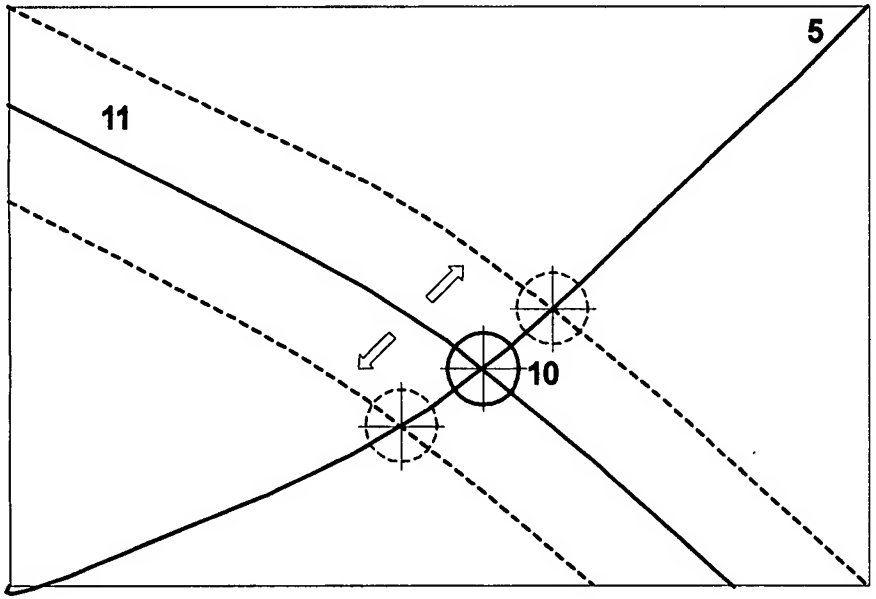


INV. TITLE: FULLY articulated and comprehensive air and fluid distribution, metering, and control method and apparatus for primary movers, heat exchangers, and terminal flow devices.
INV. NAME: DANIEL STANIMIROVIC
PHONE: 954-454-3550

CURVE RIDING AND OP DEVIATION

6

FIG. 12



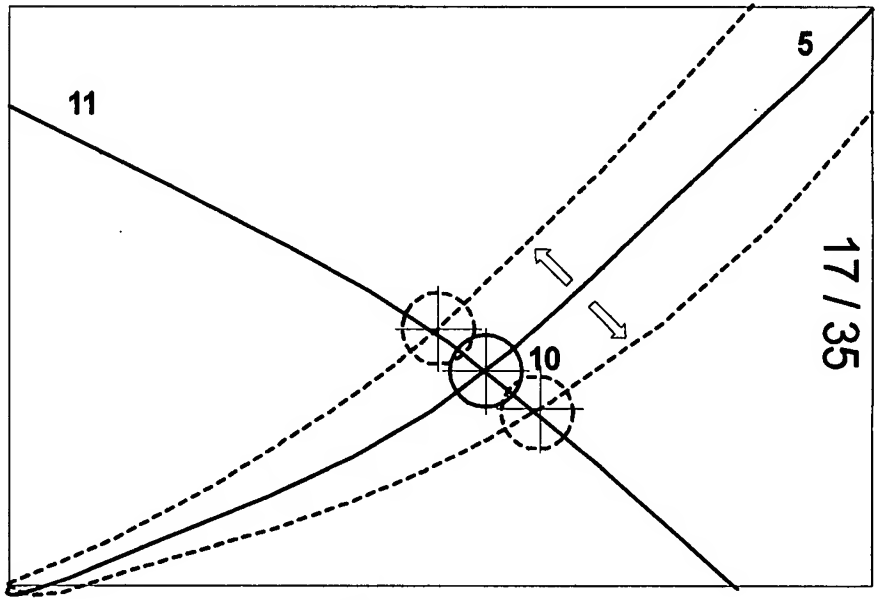
PRIME MOVER CHANGES

ROTATIONAL SPEED

SECONDARY MOVER

SERIES OR PARALLEL OPERATION

FIG. 12A



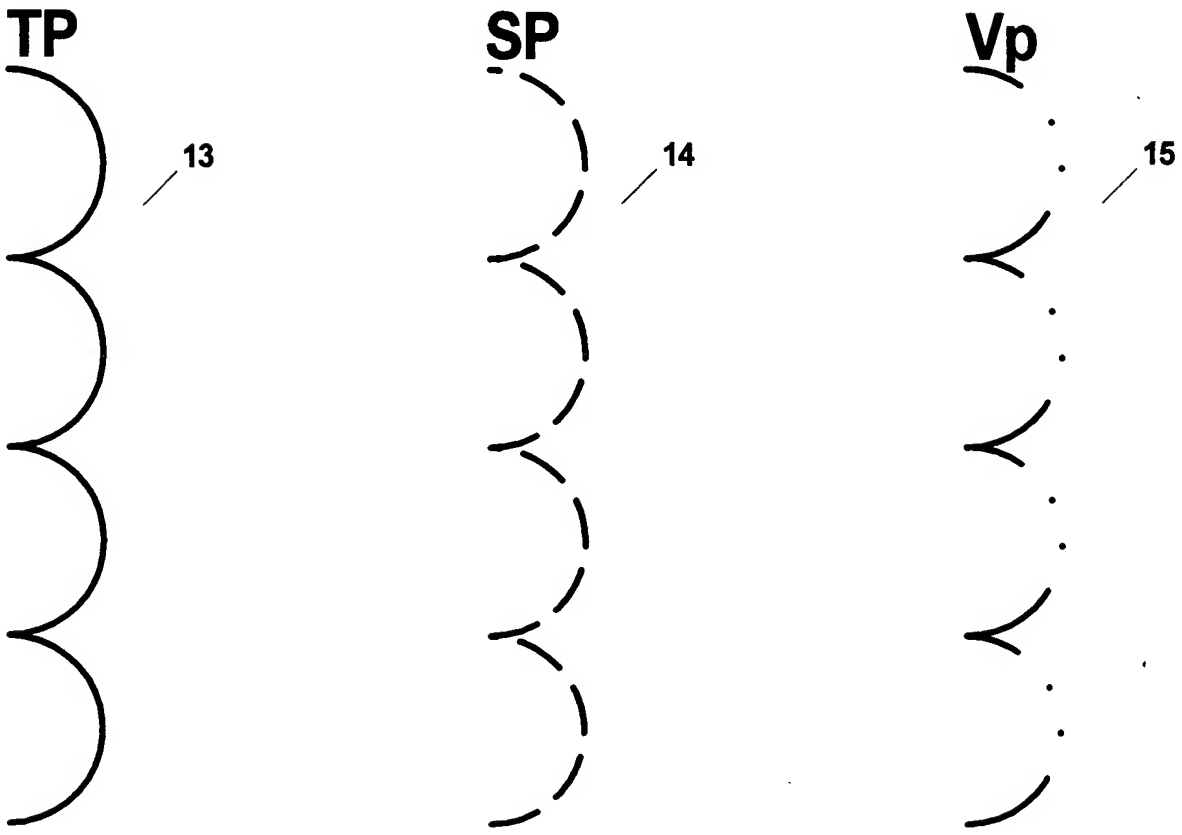
SYSTEM CHANGES

TP SP Vp

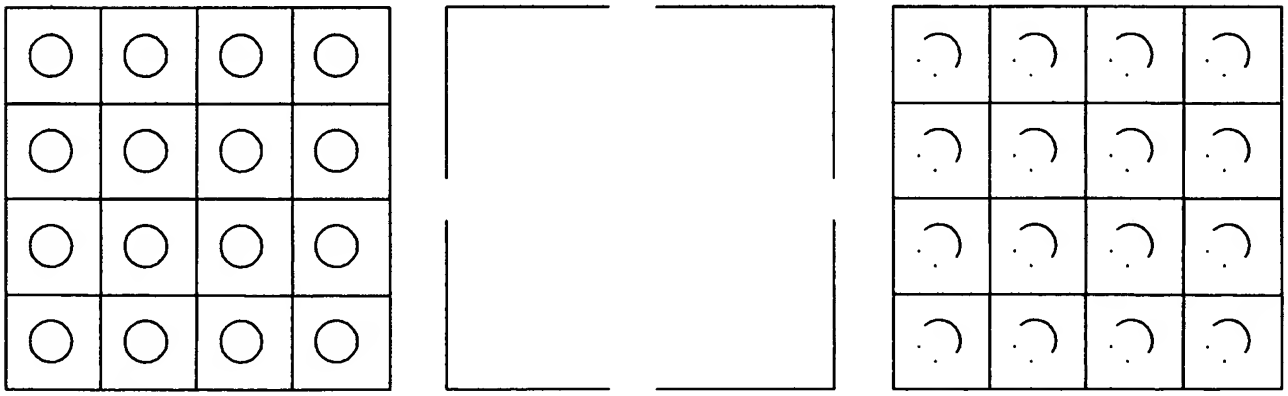
INV. TITLE: FULLY ARTICULATED AND COMPREHENSIVE AIR AND FLUID DISTRIBUTION, METERING, AND CONTROL METHOD AND APPARATUS FOR PRIMARY MOVERS, HEAT EXCHANGERS, AND TERMINAL FLOW DEVICES.
INV. NAME: DANIEL STANIMIROVIC
PHONE: 954-454-3550

FIG. 13

SENSOR LOGIC



DUCT CROSS-SECTIONAL EQUAL AREA TRAVERSE



TOTAL IMPACT SENSORS

13

STATIC ONLY SENSORS

14

VELOCITY ONLY SENSORS

TP-SP, AS WITH PITOT TUBE

15

PRIME MOVER SENSOR LOGIC

FIG. 14

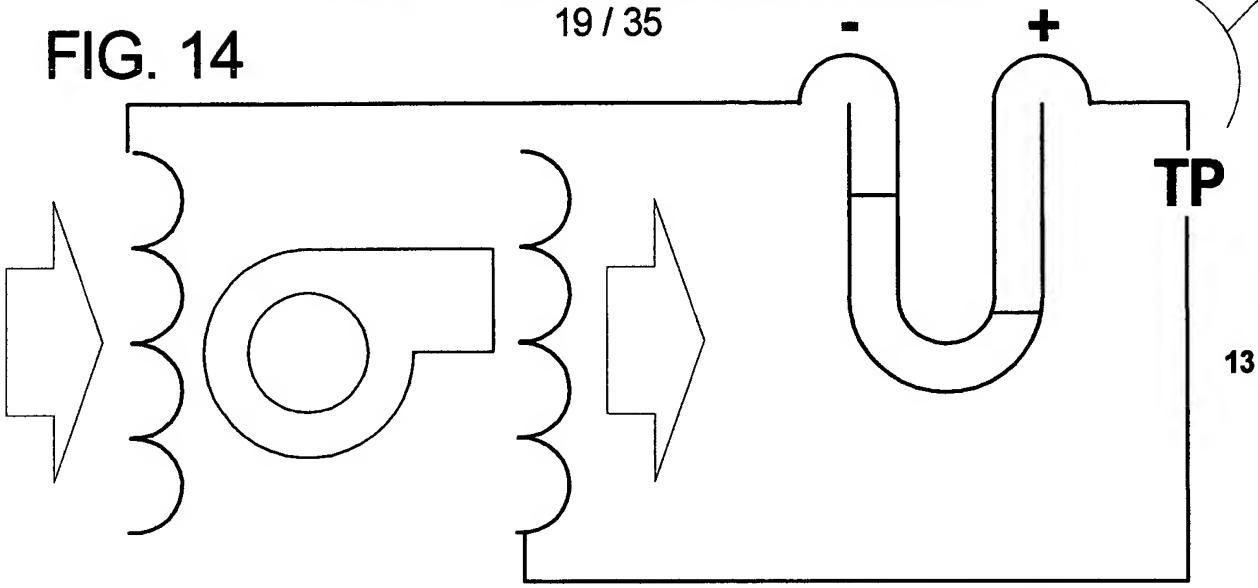


FIG. 14A

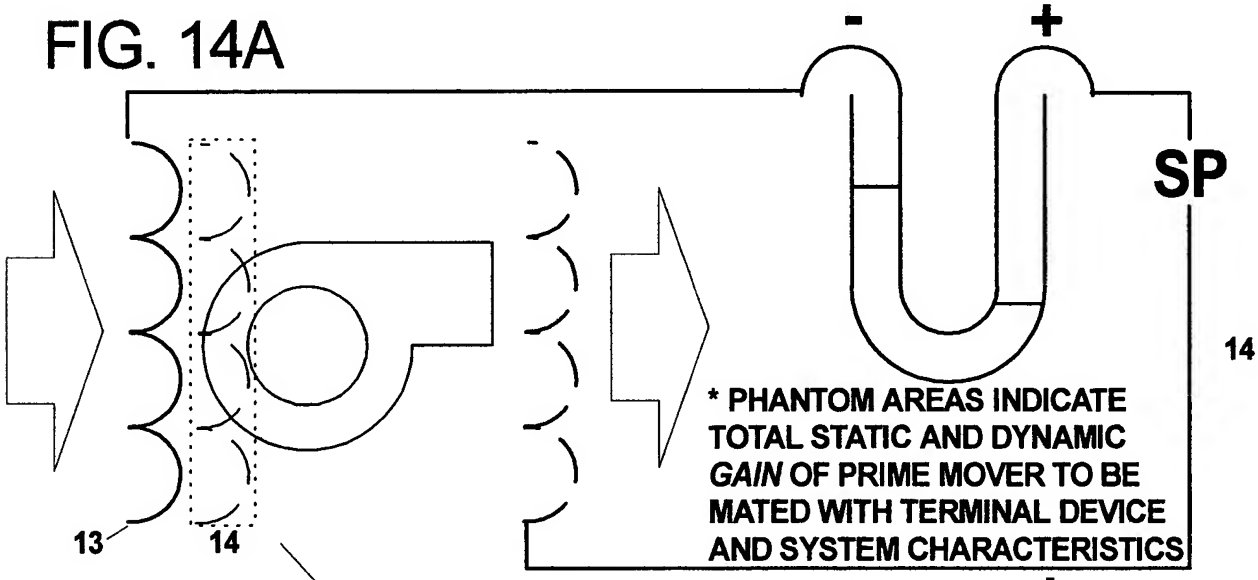
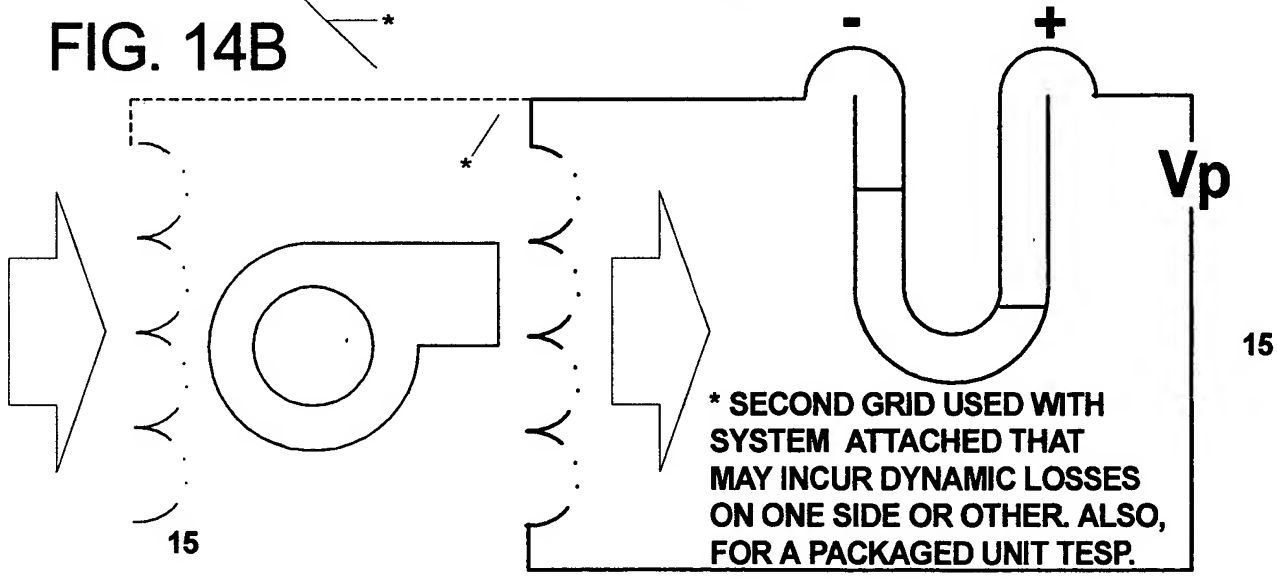


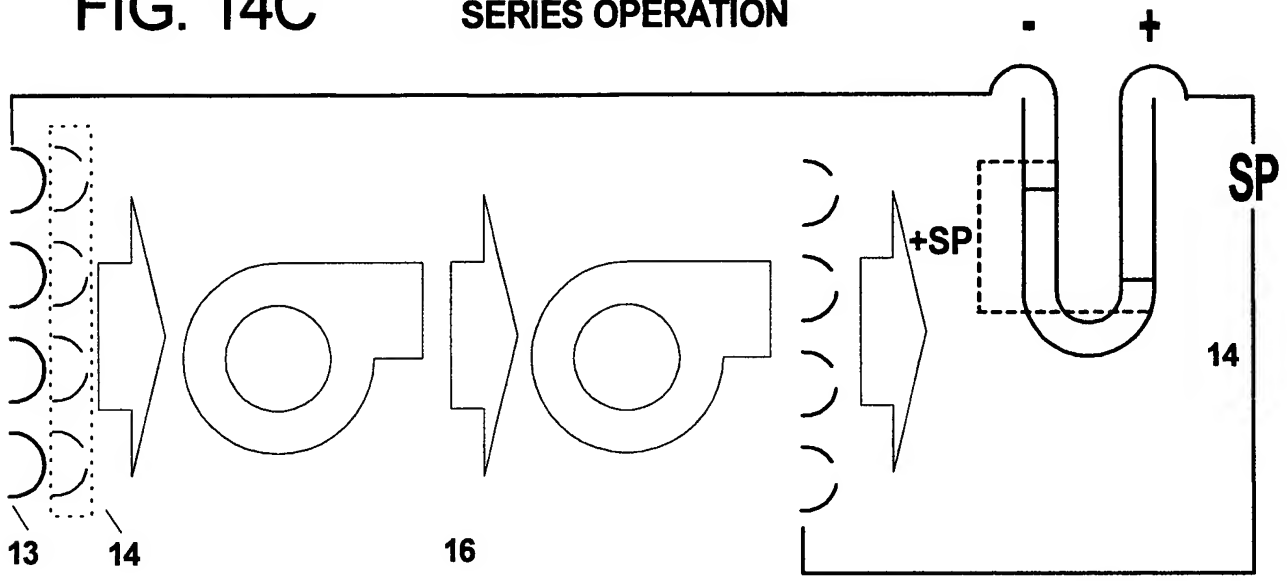
FIG. 14B



1

MOVER SENSOR LOGIC IN SERIES OR PARALLEL OPERATION

FIG. 14C SERIES OPERATION



ONE OR MORE PRIMARY MOVERS IN SERIES OR PARALLEL AUGMENT EITHER SP OR Vp, RESPECTIVELY, AS SHOWN.

FIG. 14D PARALLEL OPERATION

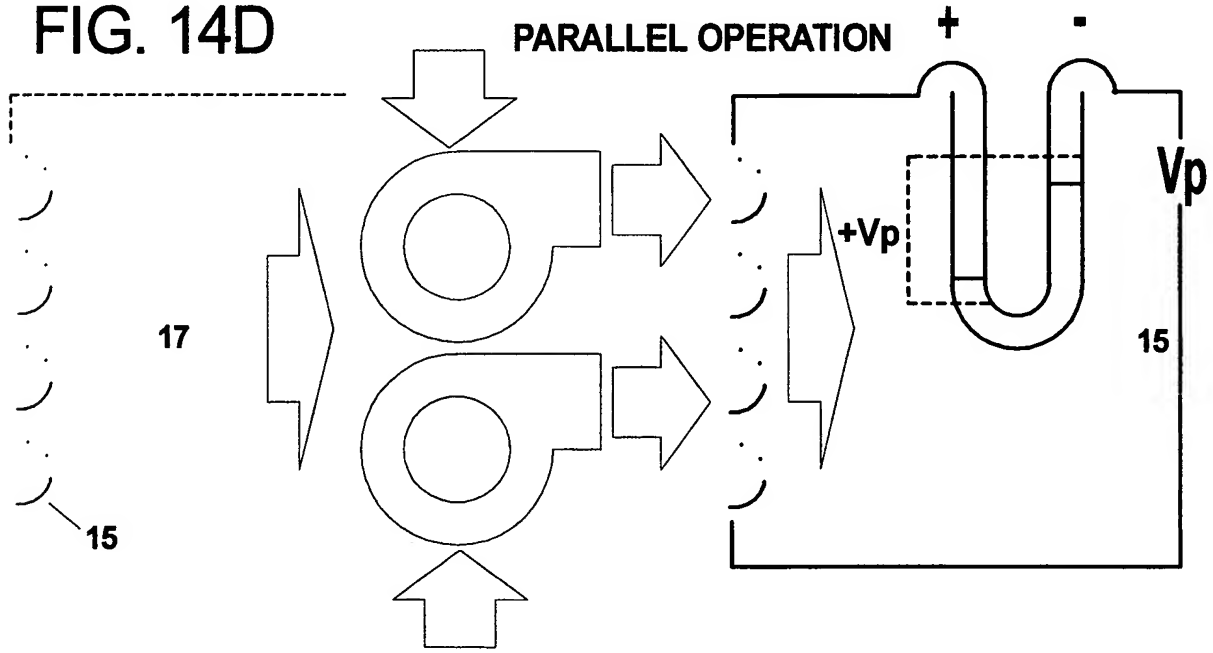


FIG. 15 **TERMINAL DEVICE SENSOR LOGIC**

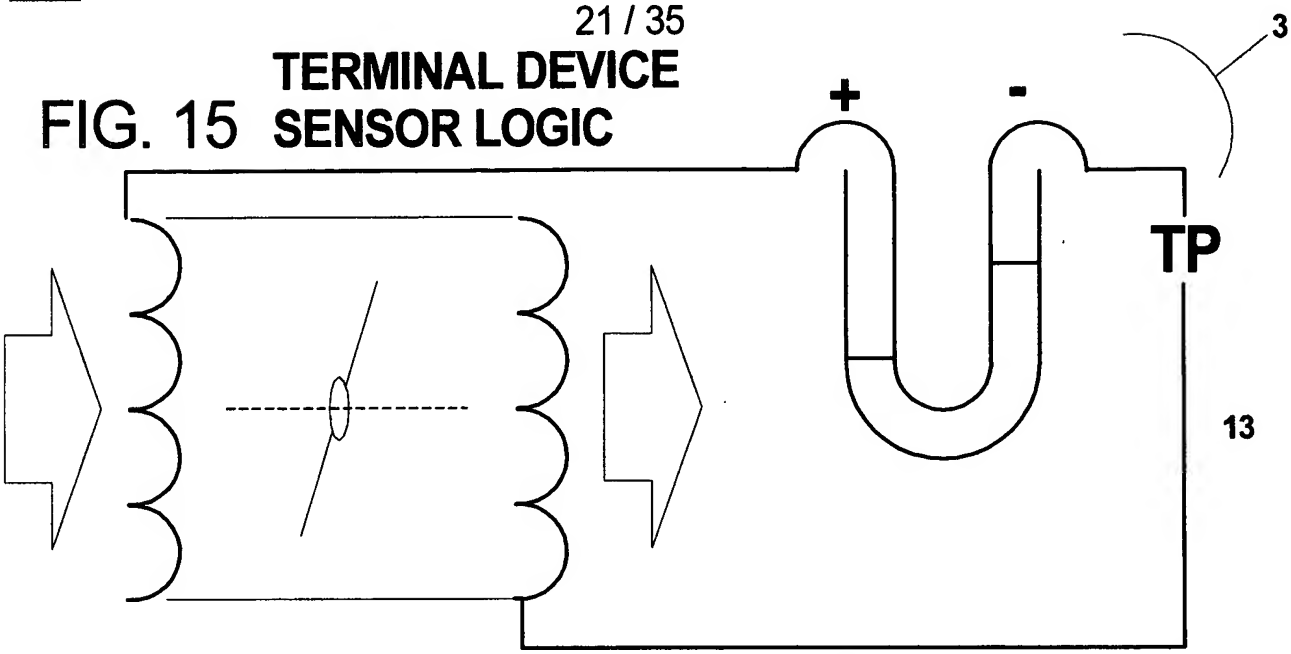


FIG. 15A

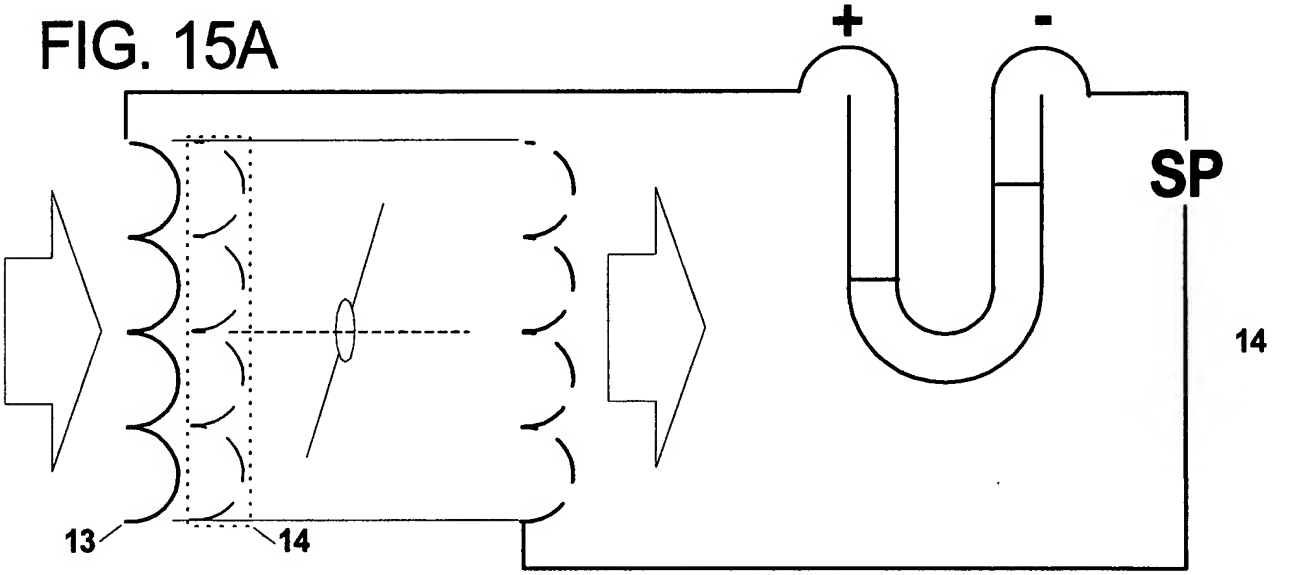
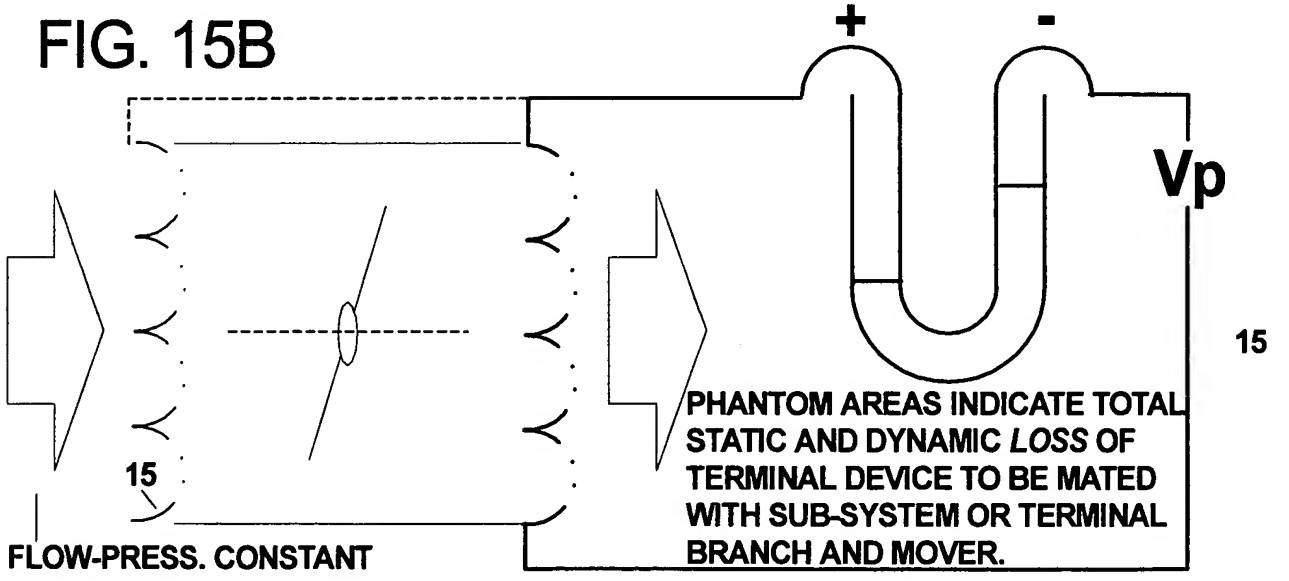
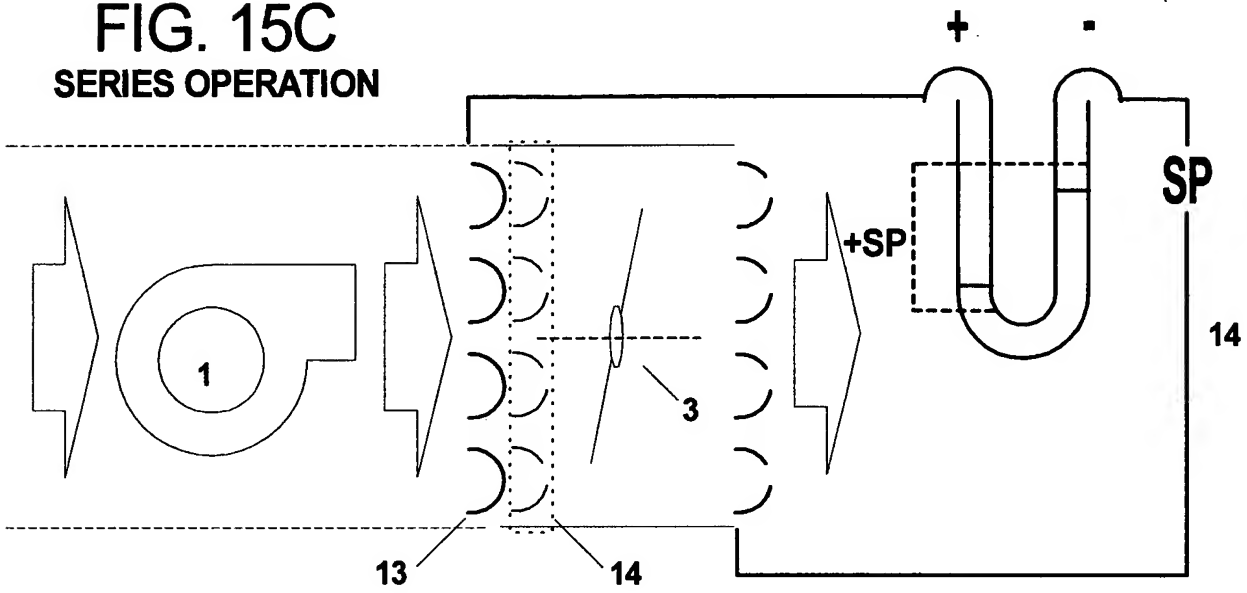


FIG. 15B



TERMINAL DEVICE SENSOR LOGIC WITH SECONDARY MOVER

FIG. 15C
SERIES OPERATION



ONE OR MORE SECONDARY MOVERS IN SERIES OR PARALLEL AUGMENT EITHER SP OR Vp, RESPECTIVELY, AS SHOWN.

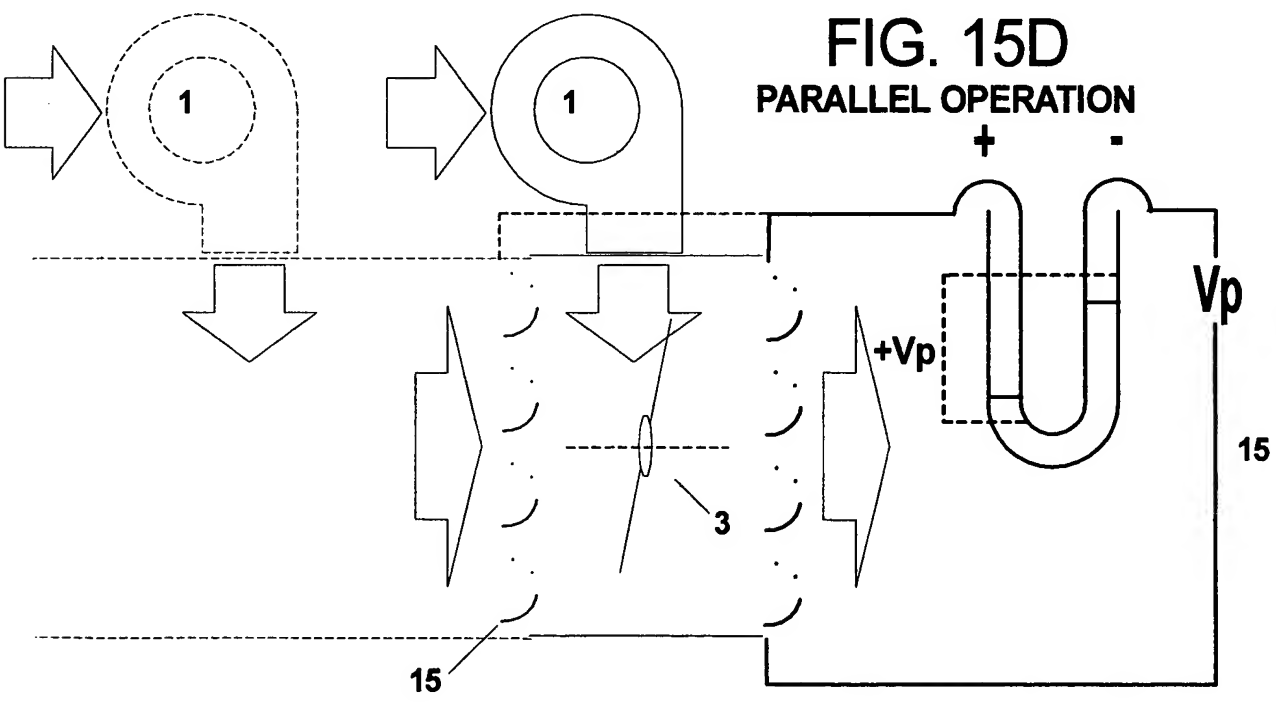


FIG. 15D
PARALLEL OPERATION

DUAL DAMPER CONTROL IN SERIES AND PARALLEL

FIG. 16

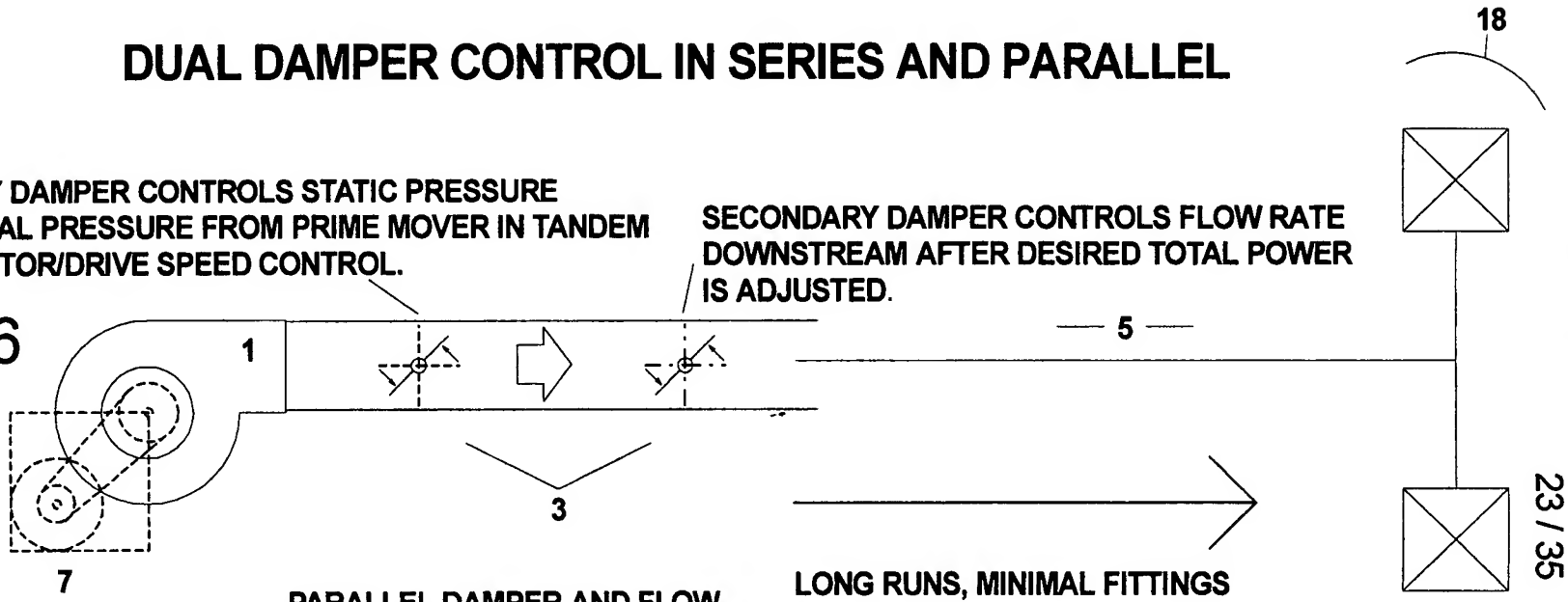
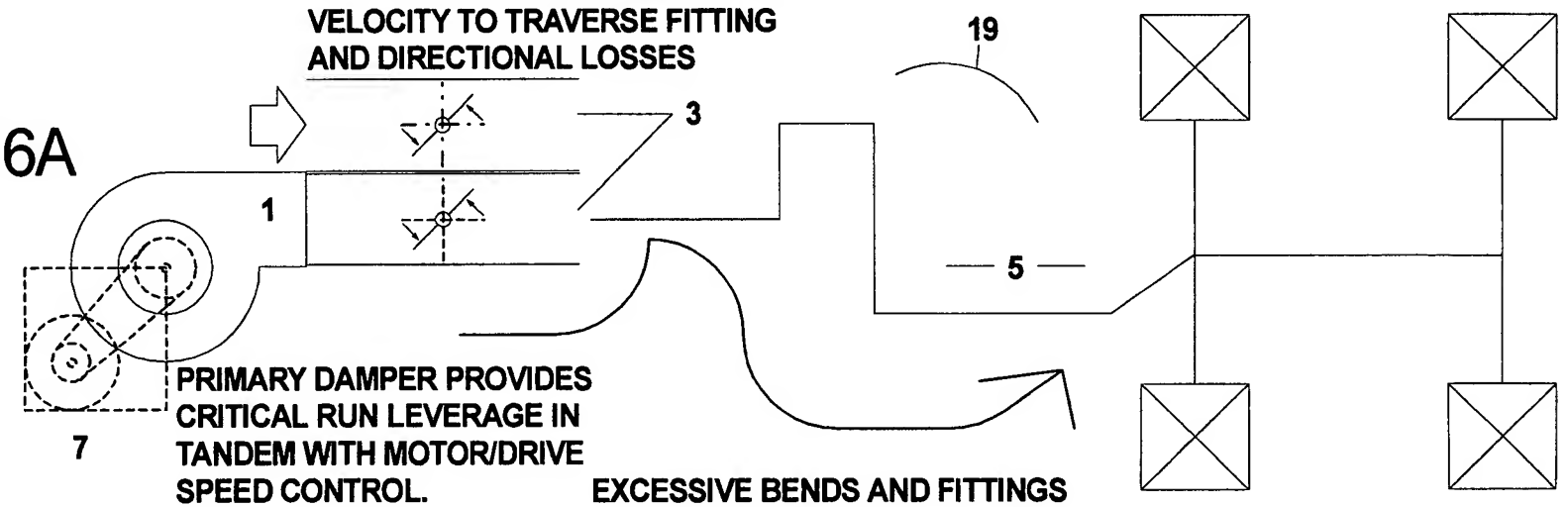


FIG. 16A



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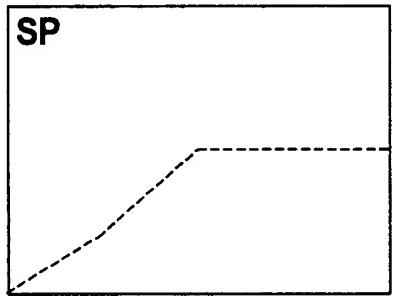
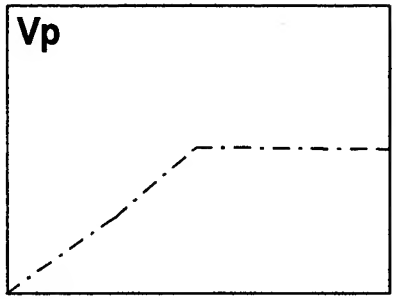
INV. NAME: DANIEL STANIMIROVIC
PHONE: 954-454-3550

LEAKAGE TESTER

SP LEVEL ADJUSTED TO DUCTWORK RATING TO PERFORM STANDARD TEST FOR GIVEN SECTION

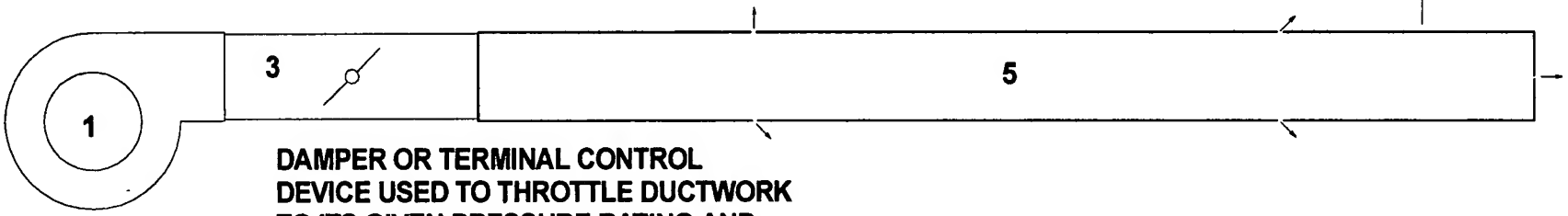




Vp CURVE LEVEL OFF INDICATES LEAKAGE AMOUNT PER SURFACE AREA OF DUCT

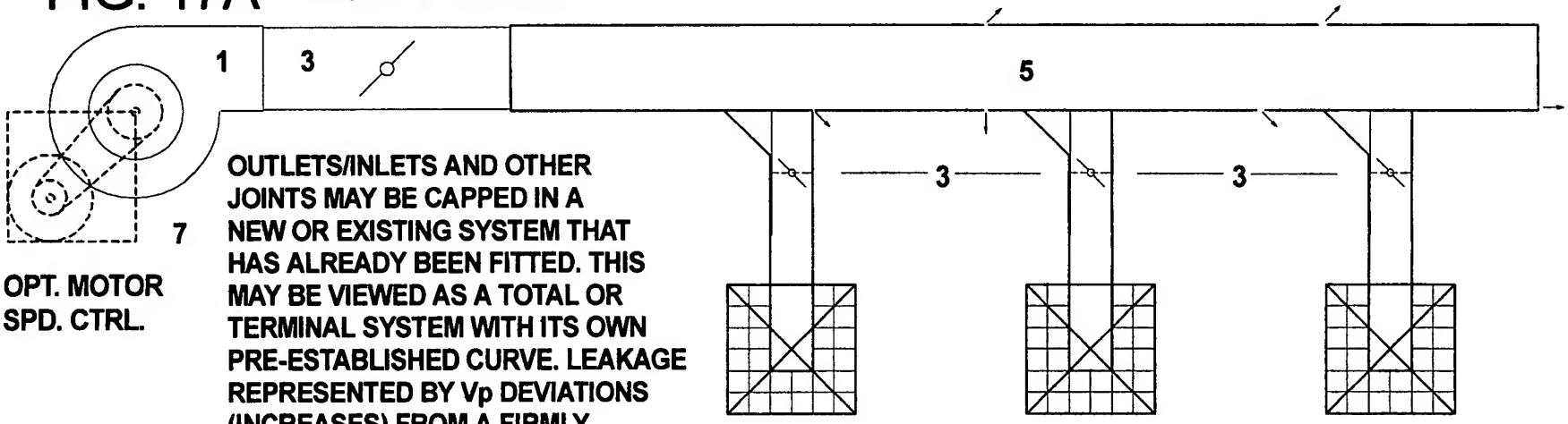
FIG. 17

DUCT SOX OR COMPLETELY CAPPED MAIN SECTION.



DAMPER OR TERMINAL CONTROL DEVICE USED TO THROTTLE DUCTWORK TO ITS GIVEN PRESSURE RATING AND MAINTAIN THIS LEVEL

FIG. 17A



OPT. MOTOR SPD. CTRL.

OUTLETS/INLETS AND OTHER JOINTS MAY BE CAPPED IN A NEW OR EXISTING SYSTEM THAT HAS ALREADY BEEN FITTED. THIS MAY BE VIEWED AS A TOTAL OR TERMINAL SYSTEM WITH ITS OWN PRE-ESTABLISHED CURVE. LEAKAGE REPRESENTED BY Vp DEVIATIONS (INCREASES) FROM A FIRMLY ESTABLISHED OPERATING POINT. SEE FIG. 12, 12A, OP DEVIATION.

INV. TITLE: FULLY ARTICULATED AND COMPREHENSIVE AIR AND FLUID DISTRIBUTION, METERING, AND CONTROL METHOD AND APPARATUS FOR PRIMARY MOVERS, HEAT EXCHANGERS, AND TERMINAL FLOW DEVICES.
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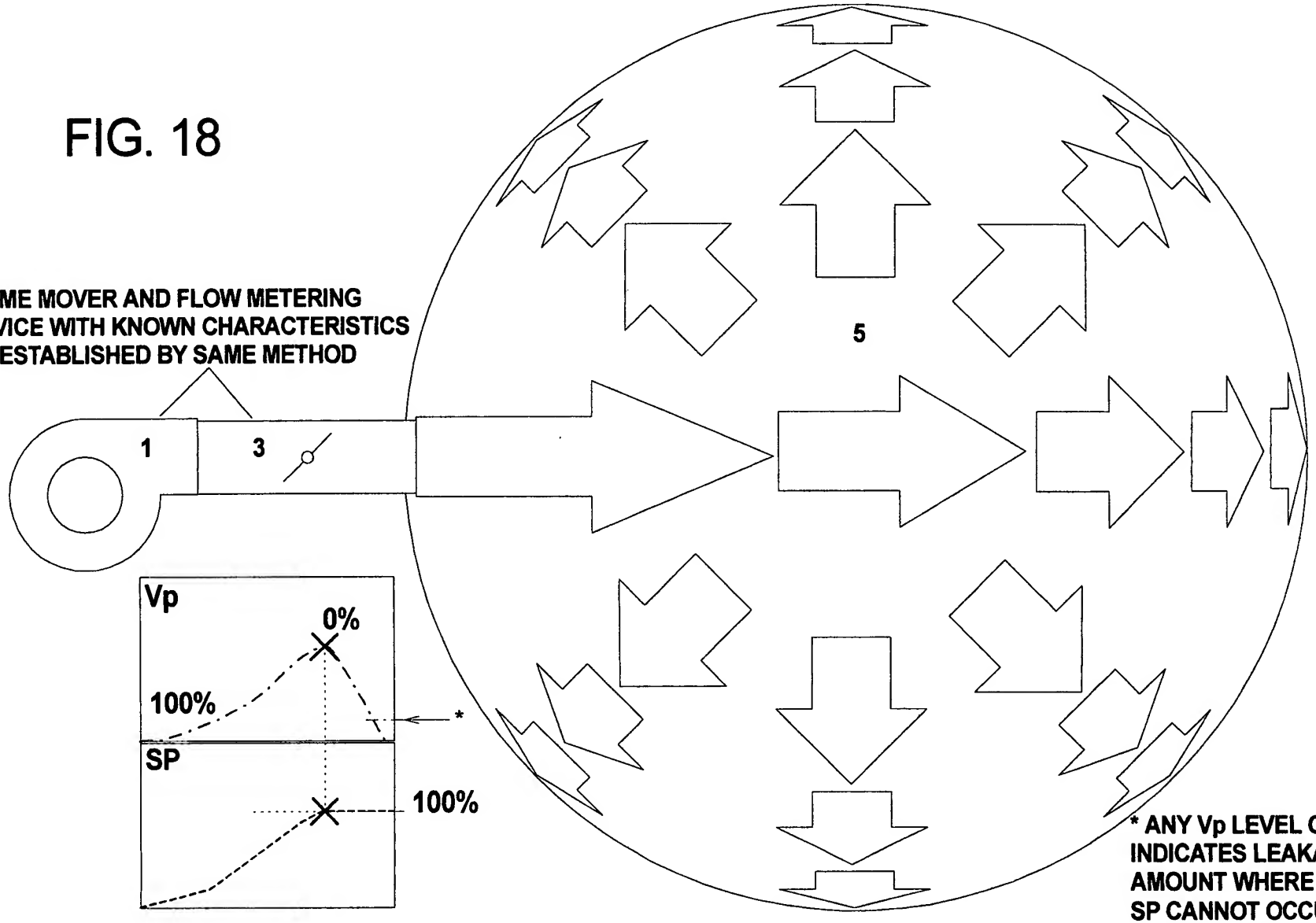
PHONE: 954-454-3550

VOLUME OF A GIVEN VESSEL OR ENCLOSURE

FIG. 18



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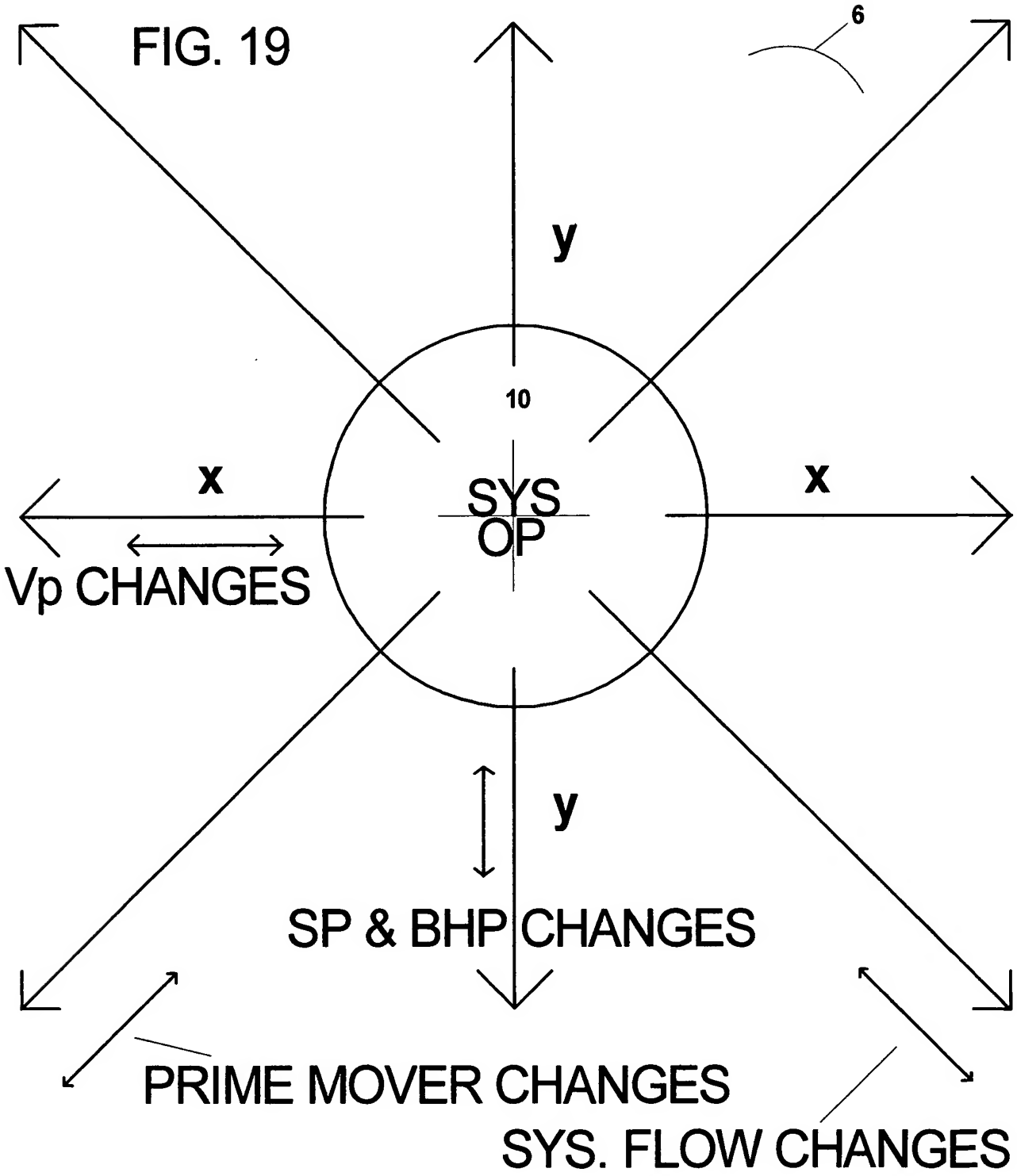
VECTORIAL DISPLAY

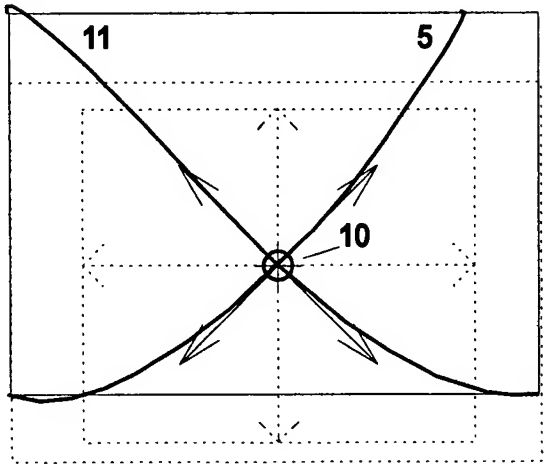
FIG. 19



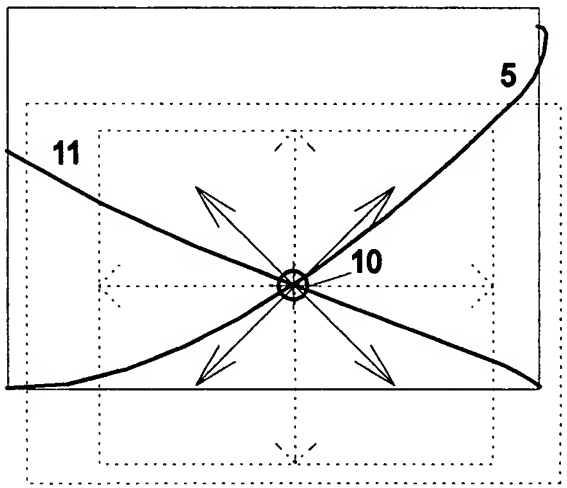
VECTORIAL ANALYSIS - TOTAL SYSTEM TO SUB-SYSTEM

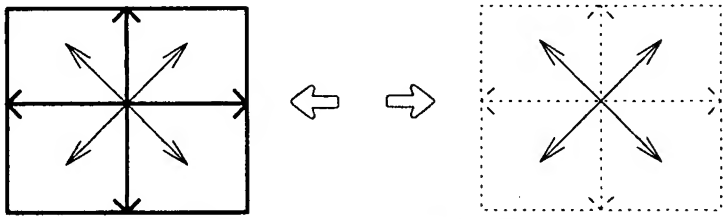
FIG. 19A

TOTAL SYSTEM OP



TERMINAL BRANCH OP





SWITCH TO OR FROM MAIN VECTORIAL DISPLAY SCREEN REFER TO FIG. 9

SHOWN HERE, A CORRELATIVE EFFECT BETWEEN A TOTAL SYSTEM AND ITS SUB-BRANCH AS THE CHANGE IN ONE AFFECTS THE OTHER, EITHER ADVERSELY OR BENEFICIALLY. THE VECTORIAL ANALYSIS PROVIDES A "BARE BONES" DEPICTION OF EACH SPECIFIC CHANGE EFFECTED IN ONE OR THE OTHER SYSTEM. FOR EXAMPLE, THERE WAS AN X INCREASE IN BHP WHEN A DAMPER WAS CLOSED IN THE SUB-BRANCH.

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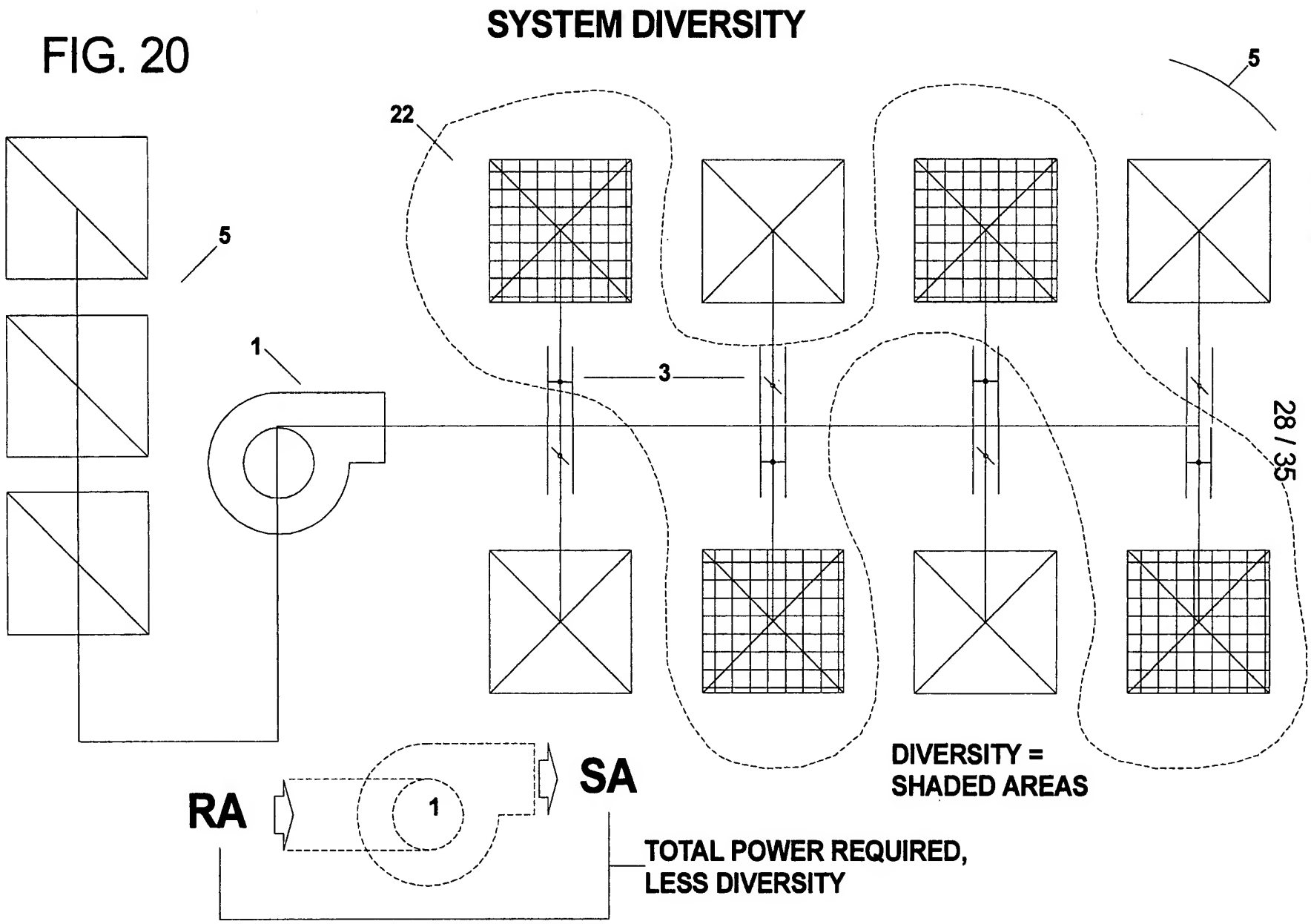
FIG. 20



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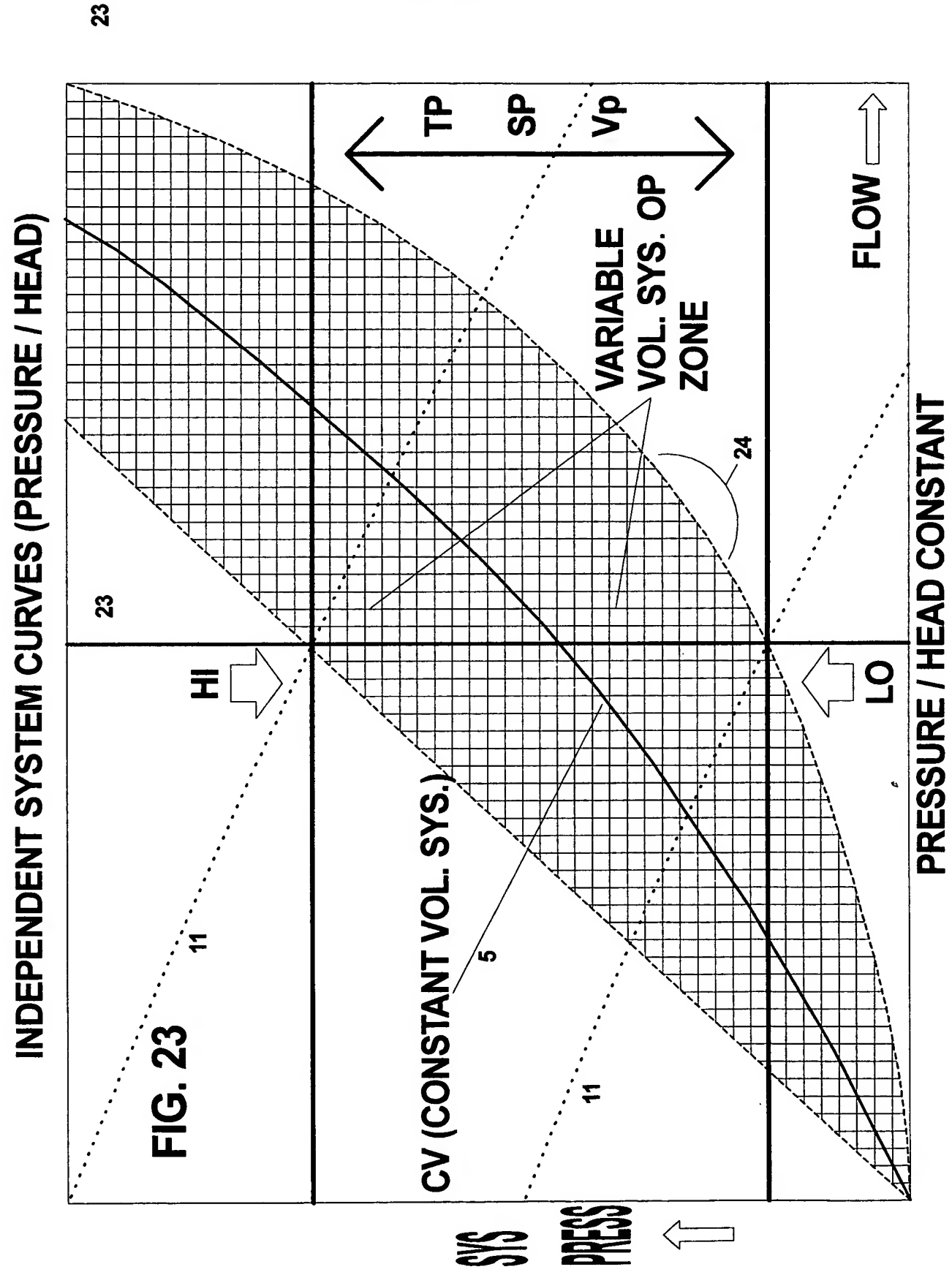
23
INDEPENDENT SYSTEM CURVES (PRESSURE / HEAD)
TP
SP
Vp
VARIABLE VOL. SYS. OP ZONE
24
FLOW
23
HI
LO
PRESSURE / HEAD CONSTANT
CV (CONSTANT VOL. SYS.)
5
11
11
SYS PRESS

FIG. 23